Alberta Economic Multipliers

2011

Alberta Government

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PREFACE

This publication presents economic multipliers and supply ratios for the Alberta economy calculated using the 2011 Alberta Treasury Board and Finance Input-Output (I/O) model. Information is provided for both the Open (direct and indirect impacts) and Closed (direct, indirect and induced impacts) forms of the model. Economic impacts are presented for the Alberta economy only.

The tables used in this publication are derived from the 2011 inter-provincial I/O tables released by Statistics Canada in November 2014.

Custom Impact Analysis

In addition to this publication, Alberta Treasury Board and Finance maintains a highly disaggregated I/O model at the detailed confidential level, which covers 235 industries and 481 commodities. The model may be used to simulate directly both Open and Closed impacts, where additional precision or more detailed output is required than is presented in this publication. To make the model more descriptive of changing economic conditions, the commodity structure can also be customized to client specifications.

The I/O model has a tax module that provides impacts on federal, provincial and local tax revenues, as well as the number of jobs required for any given impact.

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INTRODUCTION

Measuring Production in the Economy

The most commonly known measure of production in the economy is Gross Domestic Product (GDP). GDP captures the value of goods and services produced for final domestic consumption, export or investment. In other words, it covers only final, unduplicated output. For example, the value of a good or service sold by Industry A to Industry B, which in turn is used in Industry B's production process for sale into final demand, is not directly recorded in GDP. Industry A's output is not counted directly because it is implicitly included in the value of output of Industry B when it is sold into final demand. Including Industry's A output would result in double-counting of its contribution to the overall economy. To avoid this problem, in calculating GDP, goods or services are valued only at the point where they are sold into final domestic demand (i.e., to households for consumption; to business for investment; or to government for current or capital expenditure) or when they are exported.

In other words, in measuring GDP, the value of goods and services consumed during the production process (referred to as intermediate consumption) is not captured. While the GDP method ensures that there is no duplication, very useful information concerning the flow of goods and services among the various industries in an economy is not revealed.

To better reflect these linkages in the economy, it is necessary to use another valuation method called total output. Total output captures the value of goods and services for final consumption or export, plus those that are consumed during the production process (referred to as intermediate inputs). This is the focus of Input-Output (I/O) analysis.

The System of National Accounts

Statistics Canada has developed a comprehensive accounting framework, the System of National Accounts (SNA), that provides the tools to analyze production from both a value-added GDP and I/O perspective.

The SNA enables us to measure the value of goods and services in the economy, including the flow of commodities to final demand sectors; the cost of primary inputs to industries; and the value added by industries.

There are four key statistical components of the SNA:

- I/O tables, which summarize the total output of commodities by industry and the use of commodities by industries. They reflect the flow of commodities between industries and to final demand sectors; the value added by industry; and the cost of primary inputs to industries. In this way, the I/O tables describe the activity of production in the economy.
- Income and expenditure accounts, which focus on income generated by productive activity and final expenditure on that production. It is from these tables that the common measure of GDP is calculated. Estimates of Alberta GDP can be found in the income and expenditure accounts of the Alberta Economic Accounts.
- Financial flow and national balance sheet accounts, which focus on capturing transactions in assets and liabilities for a number of institutional sectors. The financial flows accounts reveal the financing of economic activity.
- Balance of payments and international investment position, which are devoted entirely to transactions with non-residents or the rest of the world in the economy.

The SNA recently underwent a historical revision, which entails the incorporation of conceptual, classification, presentational and major statistical changes. As a result, the lists of industries and commodities presented in this publication will differ from those in editions prior to the 2009 economic multipliers.

For more detailed discussion on the SNA, please go to the Statistics Canada website, System of National Economic Accounts *www.statcan.gc.ca/nea-cen/index-eng.htm.*

The Input-Output Model

What are I/O Models?

Input-Output (I/O) models use the information from I/O tables to capture the interdependence of industries and reflect the flow of goods and services through the economy. The main purpose of I/O models is to do impact analysis, measuring how changes in industry output or final demand for commodities impact the economy in terms of total output, GDP, employment, labour income and government revenue.

I/O analysis has its foundations in the analytical framework developed by Wassily Leontief in the late 1930s. In its most basic form, an I/O model consists of a system of linear equations that represent how various industries' commodities are distributed throughout the economy.

I/O models are based on tables that describe the flow of commodities through the economy from producers in one industry to another industry, and to final demand. The table below represents a simplified I/O framework:

Table 1: Simplified I/O Accounting Framework

	Industries	Net Final Demand	Total Output
Industries	F	Y	X
Value added (Primary Inputs)	V		
Total Input	X		

Source: UN Handbook of Input-Output Table Compilation and Analysis, 1999

The industries on top are consuming sectors, while the industries down the side are supplying sectors. Matrix F maps out the flow of commodities from the supplying sectors to the consuming sectors, including other industries and final demand entities. Total input is the sum of the inputs supplied by industries and any value added (other non-industrial inputs to production like labour, profit, indirect taxes and depreciation of capital). Total output is the sum of output consumed by industries in the production process (represented in row on top), plus net final demand. Theoretically, the total value of output in the economy equals the sum of its inputs (Total Input X = Total Output X).

From this table, fixed-coefficient linear production functions can be developed that represent the proportion of commodities being supplied and consumed by each industry. These coefficients are the backbone of I/O analysis because they represent how changes in input or output will impact the entire economy.

Table 1 represents a basic I/O model; in practice, I/O models have been developed to incorporate the effects of inter-regional trade flows, employment, taxes and other variables.

I/O Impacts and Model Closure

The impacts generated through I/O models can be separated into direct, indirect, and induced:

- Direct impacts are those first-level impacts resulting from a shock or change in demand, to either industry output or final demand. They refer to the direct impact on those industries that must respond to satisfy the change in demand for commodities.
- Indirect impacts are secondary, and are generated from the linkages between industries. They refer to the impacts on industries that supply intermediate inputs to the industries directly impacted by the shock.
- Induced impacts capture the income effect of the shock. They measure the impact of additional consumption from spending the wages generated by the shock. For example, when there is an increase in final demand, industries have to increase production. They hire additional people, who receive wages. It is assumed that these households, after withdrawing a portion of their income for savings and taxes, spend the rest of their income on consumer goods and services. This creates an additional multiplier effect on the economy.

Calculating GDP

The three methods for calculating GDP can be applied using the I/O framework above.

1. The value-added approach, which is the sum of value added for all industries (subtracting purchases from other businesses from the total value of output);
2. The income approach, which adds up all the factor incomes generated in the production process (for example, labour and profits);
3. The final expenditure approach, which is the sum of all sales to end users, including exports net of imports.

Open vs. Closed

The impact of spending by final demand categories can be considered external to an I/O model because decisions about spending come from factors outside the model, such as availability, personal preference, etc. This means that the final demand by these entities is taken as given, and is unrelated to the level of production by industries in the model. In this type of model, which is referred to as an "Open" I/O model, direct and indirect impacts are measured, while induced are not.

In reality, there is a link between households and the production process through labour and wages, represented by the induced impacts. In this case, the household sector is endogenous to the model and treated as a production sector. The input of the household sector is consumer expenditure on goods and services, while output is labour income (consisting of wages and salaries, supplementary labour income and labour income of unincorporated sector). An I/O model which makes households endogenous is referred to as a "Closed" model. I/O models can also be "closed" to other factors such as government sales and purchases, but closure to households is the most common. In this type of model, all three impacts are measured: direct, indirect and induced.

Closing an I/O model to households increases the interdependence of the system and results in a higher impact on the variables of the model, leading to multipliers of a larger magnitude than those based on the Open version. The Closed model has been criticized because it introduces a bias in favor of those economic projects with a higher labour content. For example, consider the case where two projects have the identical purchased inputs and the same level of direct GDP, but where one project has a higher proportion of labour income and the other a higher proportion of operating surplus (e.g., corporation profits). For this case, the Closed model will estimate a larger economic impact for the project with the higher proportion of labour income (other things being equal). This result occurs because the model has been "closed" to household spending but not to profits, and the induced impacts estimated by the model are related to the level of household income rather than profits. Care should be exercised when interpreting Closed model results.

Limitations of I/O Models

I/O analysis is based on various assumptions about the economy and the linkages among industries and commodities. While I/O models are a very useful tool in the decision-making process, users should be aware of the caveats and limitations when applying them:

- The relationship between industry inputs and outputs is linear and fixed, meaning that a change in demand for a commodity or for the outputs of any industry will result in a proportional change in production. The model cannot account for economies/diseconomies of scale or structural changes in production technologies, an assumption which does not necessarily hold in the actual economy.
- Prices are fixed in the model.
- I/O models reflect industry averages for technology use and average input costs. For these and other reasons, an I/O model will not provide a totally complete or absolute measure of the impact of economic change.
- I/O models are static and do not take into account the amount of time required for changes to happen.
- There are no capacity constraints, and all industries are operating at capacity. This implies that an increase in output results in an increase in demand for labour (rather than simply re-deploying existing labour). It also implies that there is no displacement that may occur in existing industries as new projects are completed.

The structure and limitations of I/O models lend themselves to measuring the impacts of projects that are shorter term in nature; generally, they are used to look at shocks to the economy. For longer-term, time series analysis, general equilibrium models are more appropriate.

The Alberta I/O Model

Alberta Treasury Board and Finance has developed an I/O model for the Alberta economy based on the structure of Statistics Canada's inter-provincial model. Although the Alberta model accounts for the interaction of imports and exports on the Alberta economy (both inter-provincial and international), the Alberta model provides impacts for Alberta only. The model has the capacity to run impact analysis on industry expenditures, output and changes in final demand.

The key inputs to the model are the Alberta I/O tables, produced annually by Statistics Canada through the SNA. The I/O tables consist of the output, use and final demand matrices. The output matrix is a table that shows the value of goods and services produced by each industry; the use matrix shows the makeup of the inputs needed for each industry to produce its output; and the final demand matrix shows final consumption of goods and services. Using these tables, it is possible to produce a system similar to the one outlined in Table 1.

Provincial I/O tables are available publicly at the "Summary" level of aggregation, while national I/O tables are available at the "Detailed" aggregation level. I/O tables at the "Detailed Confidential" level of aggregation are provided to provinces exclusively through data-sharing agreements. This level provides the most granular data available, covering 235 industries, 481 commodities and 278 final demand categories. The Alberta I/O model is based on "Detailed Confidential" level data, but analysis can be done at the "Summary" aggregation level, as well as two intermediate aggregation levels, "Link 1961" and "Link 1997".

The Alberta model has a tax module that provides impacts on federal, provincial and local tax revenues. The model also estimates the number of jobs required for any given impact. There is also the ability to do customized runs for different tax and wage scenarios.

A "Safety Net" feature was added to the model in 2011. This feature allows for the assumption that a certain number of jobs required for a change in output of a project will come from people who are receiving employment insurance. When this new feature is activated, the induced impacts resulting from a project will be less since at least a portion of the new jobs are filled by people previously receiving employment insurance. This means that the amount of additional income earned is lower than if those employees had not been receiving employment insurance benefits. This publication includes both Closed model results without a "Safety Net" and Closed model values with this feature activated.

Alberta Economic Multipliers

The most common application of I/O models is economic multipliers, which are generated by the I/O model for industries and commodities. Economic multipliers capture the impact of shocks to the economy on output, labour income, employment and GDP. They enable users to do impact analysis without getting into the detailed analysis associated with the I/O models.

Limitations of I/O Multipliers

Economic mulitpliers are subject to the same caveats and limitations of I/O models. This includes the caveats associated with fixed prices, production technology and capacity. In addition, there are several other things to keep in mind when using multipliers:

- Multipliers are specific to regions and economies. The multipliers in this publication are for the Alberta economy, and thus cannot be used to estimate impacts for other regions. This includes other regions within Canada or smaller regions within Alberta.
- The size and interpretation of a multiplier depend on how it is defined. There are multipliers that measure the impact on gross output while others measure GDP, which is often more desirable because GDP multipliers eliminate the double-counting of expenditures (or benefits). It may be tempting to use the multiplier that gives the largest impact, but this may not be the most appropriate multiplier.
- Impacts reflect the structure of the economy and industry linkages at a point in time, i.e., 2011. If these linkages have changed, the calculation of the impacts in another year (e.g., 2015) will be less valid. Generally, the more removed the year of analysis from the year of the multipliers, the greater the limitations.
- Since I/O models are static, the multipliers do not give any indication about the time it takes for changes to happen.

Alberta Multiplier Structure

Open vs. Closed Multipliers

There are two main kinds of multipliers: Open and Closed. Open multipliers reflect only direct and indirect effects, whereas Closed multipliers consider induced impacts in addition to direct and indirect effects. Results from both the Open and Closed (to households) models are presented in this publication. This approach allows users to use both versions for the purposes of analysis and to judge for themselves where the inclusion of induced impacts is warranted or advisable.

Simple/Total Multipliers and Type I/II Multipliers

The Open multipliers presented in this publication are expressed in two forms: as Simple multipliers and as Type I multipliers. The Closed version of these multipliers are called Total multipliers and Type II multipliers respectively. In this publication, Simple / Total multipliers are arranged by industry and by commodity, whereas Type I/II multipliers are arranged by industry only.

(Please note that in editions prior to the current publication, Simple/Total multipliers were called "Intensity Ratios", while Type I/II multipliers were labeled "Industry Multipliers". The revision of terminology was done in order to be more consistent with the terminology employed by Statistics Canada. No change, however, was made in their methodology.)

Simple/Total multipliers, whether by industry or by commodity, are calculated by dividing the total economic impact by the change in output. For example, if an industry increases its output by $5.0 million and this leads to an increase of $4.0 million in Alberta GDP, the multiplier value would be 0.80 (i.e., 4.0 divided by 5.0).

Type I/II multipliers are calculated by taking the total impact observed for a change in an economic variable and dividing it by the direct change. For example, if 100 jobs directly attributable to an industry (direct employment) correspond to 180 jobs (total employment) in the economy overall, the industry employment multiplier would be 1.8.

Simple/Total multipliers require only information on gross output or expenditure to calculate the suite of economic impacts, whereas Type I/II multipliers have to be applied to the direct change in the economic indicator of interest. Thus, Simple/Total multipliers are the form of multiplier that most users typically utilize since they generally know the direct change in revenue or expenditure, but do not know the direct change in the other economic indicators that they are interested in analyzing.

Basic and Purchaser Prices

Simple/Total multipliers by commodity are presented at both basic and purchaser prices. Data that are measured at basic prices reflect the price received directly by the producer of the commodity.

For example, this corresponds to the "farm gate" price in agriculture or the price received directly by a producing establishment in manufacturing.

Data at purchaser prices reflect the price paid by the final users of the commodity. This price, in addition to the price received by the producer of the commodity, reflects other costs such as the price of transportation from the producer to the final seller; wholesale and retail mark-ups; and commodity indirect taxes. These other costs, which are added to basic prices to derive purchaser prices, are referred to as margins. The model treats these margins as if they were purchased directly by the purchaser of the final good.

Commodity Supply Ratios

Most commodities that are consumed in Alberta, either as intermediate inputs or through final demand, are not 100 percent produced in Alberta. Often a portion is imported from other parts of Canada or the rest of the world. Table 13, Alberta Commodity Supply Ratios, summarizes the proportion of the supply that comes from within and outside Alberta for each major commodity group. For example, according to the table, 75.9 percent of forestry products and services (code: M11E0) are produced in Alberta, while 21.0 percent come from the rest of Canada and 3.1 percent come from the rest of the world.

The multipliers presented in this publication reflect the impact of output produced in Alberta only. This means that Table 13 should always be applied whenever a commodity is being purchased in order to strip out imports, thereby determining the actual value of Alberta-based output. Thus, for a purchase of $1,000,000 of forestry products and services:

- Alberta output: $1,000,000 * 75.9% = $759,000
- Calculation: $759,000 * **multiplier** = IMPACT

On the other hand, if the analysis revolves around the *production* of a commodity, rather than the purchasing of the commodity, then the application of Table 13 is not necessary.

Application of the Alberta Multipliers

Due to the limitations of the I/O model, it is unlikely that many of the assumptions and caveats associated with the multipliers would hold fully in the real world. It is important to understand the limitations and apply the multipliers in a reasonable way.

The most common application of multipliers is to estimate the economic impact associated with the establishment of a new firm, or the expansion of existing firms (or firm closure/contraction). In these cases, it is preferable to use economic multipliers for relative, rather than absolute, comparisons. This means that while economic multiplier analysis may be used to determine which activity has the largest economic impact, it should not be used to estimate the absolute impact of any single activity. Where multipliers are used to estimate the impacts of a single activity, the results should be treated as general estimates only and not as absolute values.

Projects that rely more on locally produced commodities generate higher impacts than those that rely primarily on imports. The greater the linkages between an industry and other parts of the economy, and the greater the value of these linkages, the larger the industry's multiplier.

The I/O model is largely based on Statistics Canada's I/O tables, several of which are presented in current dollars only. Therefore, since the I/O model describes the Alberta economy in 2011, it is highly recommended to adjust all dollar values to 2011 prices using appropriate price deflator(s), such as the Consumer Price Index, in order to better capture the actual volumes of commodities associated with the impacts.

When using the employment multipliers, users are cautioned that these multipliers show the total number of jobs that are required to support the change in activity being considered, but does not indicate the number of new jobs created. When the economy is running at full employment, it is important to remember that the number of jobs required for a particular project must come from other projects/ industries or from outside the province. As indicated above, the I/O model assumes unlimited capacity, whereas in reality, there is a limited number of people in the workforce. Please note that all employment impacts referenced throughout this document are measured in person-years.

The industry multipliers in this publication are at the "Link 1961" level of aggregation, while the commodity multipliers are provided at the "Summary" level. For more detailed impact analysis that considers industries or commodities at a more granular level, it may be necessary to do a custom run through Alberta Treasury Board and Finance. If users wish to exercise this option, they should contact Alberta Treasury Board and Finance directly.

Description of Economic Multiplier Tables

In this publication, economic multipliers are presented for GDP at basic prices, labour income, employment and total output. Below is a brief description of each of the tables contained in this publication and how they should be used. Tables 1 to 4 present results from the Open model, Tables 5 to 8 present results from the Closed model without a Safety Net, and Tables 9 to 12 present results from the Closed model with a Safety Net activated. Table 13 presents commodity supply ratios for Alberta.

For simplicity, all dollar values below are at 2011 prices.

Table 1: Simple Multipliers By Industry

Open Model

Table 1 presents Simple Multipliers by industry that measure the direct and indirect effects on the Alberta economy due to a change in output for each of the 107 major industries.

The impacts on GDP, labour income and gross production are expressed as impacts per dollar of output change, while employment impacts are expressed as the number of jobs per $10,000 of output.

Example:
If there was a $1 million increase in the output of the Residential Building Construction industry (code: BS23A00), the economic impacts would be as follows:

- The impact on GDP at basic prices: 0.653 * $1,000,000 = $653,000.
- The impact on labour income: 0.451 * $1,000,000 = $451,000.
- The impact on employment required: $1,000,000/$10,000 * 0.063 = 6.3 jobs.
- The impact on total output: 1.498 * $1,000,000 = $1,498,000.

Table 2: Type I Multipliers

Open Model

Table 2 consists of multipliers (direct and indirect) for industries. To use these multipliers, the user must know the direct increase in GDP at basic prices, labour income and the direct number of jobs for which the economic impacts are being analyzed.

- To use the GDP multiplier, the direct GDP content associated with some change in output must be known or calculated. The components of direct GDP at basic prices are those items which make up labour income, net taxes on production and a firm's operating surplus (profits, depreciation, etc.). The GDP multiplier is applied to this value.
- To use the labour income multiplier, the direct increase in wages, supplementary labour income and labour income of unincorporated sector must be known or estimated. The labour income multiplier is then applied to this value.
- The employment multiplier is expressed in terms of total number of jobs per direct job. For example, if a firm in Residential Building Construction industry (code: BS23A00) was established and employed 100 people directly, a total of 100 * 1.625 = 162.5 jobs would be required (i.e., 100 direct jobs, plus an additional 62.5 indirect jobs). Please note that the multiplier does not distinguish between employee jobs and self-employed jobs (including persons working in a family business without pay).
- The output multiplier is expressed in terms of total gross production per dollar of direct production.

Table 3: Simple Multipliers By Commodity at Basic Prices

Open Model

Table 3 presents multipliers for the direct and indirect effects on the Alberta economy due to a change in output for each of the 62 commodity groups.

The impacts on GDP and labour income are expressed as impacts per dollar of output change, while employment impacts are expressed as the number of jobs per $10,000 of output. Table 3 presents results calculated for data at basic prices.

Example:
If output of live animals (code: M112A) increased by $10 million in Alberta, the economic impacts would be as follows:

- The impact on GDP at basic prices:
  0.601 * $10,000,000 = $6,010,000.
- The impact on labour income:
  0.278 * $10,000,000 = $2,780,000.
- The impact on employment required:
  $10,000,000/$10,000 * 0.099 = 99.0 jobs.
- The impact on output:
  2.254 * $1,000,000 = $22,540,000.

Table 4: Simple Multipliers By Commodity at Purchaser Prices

Open Model

Table 4 is analogous to Table 3 except that it presents results for data at purchaser prices.

Table 5: Total Multipliers By Industry

Closed Model

Table 5 is analogous to Table 1, except that it presents results for the closed model, which includes induced impacts in addition to the direct and indirect effects.

Table 6: Type II Multipliers

Closed Model

Table 6 is analogous to Table 2 except that it presents results for the closed model, which includes induced impacts in addition to the direct and indirect effects.

Table 7: Total Multipliers By Commodity at Basic Prices

Closed Model

Table 7 is analogous to Table 3, except that it presents results for the closed model, which includes induced impacts in addition to the direct and indirect effects.

Table 8: Total Multipliers By Commodity at Purchaser Prices

Closed Model

Table 8 is analogous to Table 4, except that it presents results for the closed model, which includes induced impacts in addition to the direct and indirect effects.

Table 9: Total Multipliers By Industry

Closed Model with Safety Net

Table 9 is analogous to Table 5, except that the results are presented with a "Safety Net" activated.

Table 10: Type II Multiplers

Closed Model with Safety Net

Table 10 is analogous to Table 6, except that the results are presented with a "Safety Net" activated.

Table 11: Total Multipliers By Commodity at Basic Prices

Closed Model with Safety Net

Table 11 is analogous to Table 7, except that the results are presented with a "Safety Net" activated.

Table 12: Total Multipliers By Commodity at Purchaser Prices

Closed Model with Safety Net

Table 12 is analogous to Table 8, except that the results are presented with a "Safety Net" activated.

Table 13: Commodity Supply Ratios

Percent

Table 13 shows the source of supply for commodities purchased in Alberta. The data is presented as a percent for Alberta, for the rest of Canada and for the rest of the world. This table indicates both the extent of "openness" of the Alberta economy and the degree to which the economy depends on imports. For example, 75.9% of forestry products and services (code: M11E0) purchased in Alberta were supplied by Alberta domestic production, 21.0% were imported from the rest of Canada, and 3.1% were imported from outside Canada.

Application of Economic Multipliers

The following example shows how the multipliers are used. In this example, the goal is to analyze which of two projects will provide a greater economic impact on the Alberta economy.

In general, the information available to do the analysis will determine which multiplier is most appropriate to use. For the purposes of this example, the results are presented for the Open model only. The same calculations can be done using the appropriate Closed model tables.

For proper application of the multipliers, all dollar values should be adjusted to 2011 prices using appropriate price deflator(s). For simplicity, all dollar values below are presented at 2011 prices.

The following information is available:

Project 1: Construction of an establishment in the Wood Product Manufacturing Industry

The plant (establishment) will cost $4 million (at basic prices) to build in 2015. A further $1 million (at purchaser prices) will be spent purchasing industrial machinery. When in operation in 2016, the plant will provide 12 jobs and generate annual sales of $3 million (at basic prices) with the distribution of costs outlined below. For simplicity, net taxes on production and products are ignored.

Project 2: Expansion of output by an establishment in the Wholesale Trade Industry

This project expands production by $3.2 million (at basic prices) in 2015 and 2016.

Analysis of Project 1

To analyze the impact of Project 1, it is necessary to divide the project into two phases. The first phase occurs in 2015 and involves the effects of constructing the plant and purchasing the machinery. The second phase is the economic impacts of the yearly output of the plant beginning in 2016.

Construction Phase of Project 1:

For the impacts associated with the construction of the plant, the appropriate economic multipliers can be found in Table 1. In this case, the industry here is Non-Residential Building Construction (code: BS23B00).

The construction phase during 2015 would have the following effects:

- The impact on GDP at basic prices: 0.633 * $4,000,000 = $2,532,000.
- The impact on labour income: 0.438 * $4,000,000 = $1,752,000.
- Employment required: $4,000,000/$10,000 * 0.057 = 22.8 jobs.

The impacts of purchasing the industrial machinery (M3330) in 2015 are estimated by using the appropriate economic multipliers in Table 4. Since a commodity is being purchased, Table 13 must be applied to account for the proportion of output coming from Alberta. According to Table 13, 29.9 percent of the industrial machinery purchased in Alberta is produced in the province, so the value of the machinery purchased must be adjusted to reflect this.

The calculated impacts due to machinery purchases are as follows:

- Total value of Alberta machinery: 29.9% * $1,000,000 = $299,000.
- The impact on GDP at basic prices: 0.415 * $299,000 = $124,085.
- The impact on labour income: 0.278 * $299,000 = $83,122.
- Employment required: $299,000/$10,000 * 0.035 = 1.0 jobs.

Alberta clearly derives more economic benefit from the construction activity associated with Project 1 than it does from the purchase of industrial machinery. This is partly due to the higher Alberta content for construction (i.e., local labour and materials) compared with machinery, which is predominately produced outside the province.

Operations Phase of Project 1:

The second phase of impacts associated with Project 1 involves the actual operation of the plant, which would begin operations in 2016. For this phase, the industry tables are used, since the impacts associated with the output of a particular industry are being analyzed. Since both the value of direct output and a breakdown of inputs have been given, either Simple multipliers (Table 1) or Type I multipliers (Table 2) can be used. To use Table 1, the procedure is to locate the appropriate industry and apply the ratios to the value of output. Here, information for the Wood Product Manufacturing industry (BS32100) is used, yielding the following impacts:

- The impact on GDP at basic prices:
  0.671 * $3,000,000 = $2,013,000.
- The impact on labour income:
  0.454 * $3,000,000 = $1,362,000.
- Employment required:
  $3,000,000/$10,000 * 0.061 = 18.3 jobs

Since detailed cost information has been provided, the Type I multipliers provided in Table 2 can also be used. The first step is to analyze the categories for which cost information has been provided and identify which of these enter into the establishment's operating surplus and thereby directly into GDP at basic prices. As a rule, wages, profits and depreciation are primary inputs (not purchased from another industry) and go directly into GDP. If overhead consists of salaries for administration (as is assumed in this case), this category also enters directly into GDP. Materials and other purchased inputs are not considered as direct GDP since they are purchased from other industries and involve indirect economic impacts.

Therefore, the cost categories can be allocated as follows:

	(000s)	
Wages	$ 825	Direct GDP
Profit	$ 100	Direct GDP
Depreciation	$ 200	Direct GDP
Overhead	$ 25	Direct GDP
Subtotal	**$ 1,150**	**Direct GDP**
Materials	$ 1,850	Indirect Output
Total	$ 3,000	

Thus, $1,150,000 out of the firm's $3 million gross output constitutes its direct contribution to GDP at basic prices.

Included in this contribution is an estimated $850,000 ($825,000 + $25,000) of direct labour income and 12 direct jobs to which the appropriate multipliers from Table 2 (Wood Product Manufacturing, code: BS32100) would be applied. The impacts are below, based on Table 2:

- The impact on GDP at basic prices:
  1.752 * $1,150,000 = $2,014,800.
- The impact on labour income:
  1.609 * $850,000 = $1,367,650.
- Employment required:
  1.623 * 12.0 direct jobs = 19.5 jobs.

In this example, the results using multipliers from Table 2 are similar to those calculated using the Simple multipliers from Table 1. In practice, the multipliers from Table 2 should be used in preference to the intensity ratios from Table 1. Intensity ratios assume an "average" direct contribution to labour income, GDP at basic prices and employment; these factors can vary significantly from industry averages for particular firms. Generally, a more accurate result can be obtained by using actual data for firms and Type I (or II) multipliers rather than the industry averages implied in the Simple (Total) multipliers. However, to use Table 2, one must already know the direct impacts on GDP.

Analysis of Project 2

The only information provided for Project 2 is that output will increase by $3.2 million at 2011 prices in both 2015 and 2016 for an establishment in the Wholesale Trade industry (code: BS41000). Since only industry data on output have been provided, one of the industry tables must be used (Table 1 or 2). As there is no breakdown of costs provided, multipliers from Table 1, rather than the multipliers from Table 2, must be used.

The $3.2 million change in output is applied to each multiplier, yielding the following total impacts:

- Impact to GDP at basic prices:
  0.817 * $3,200,000 = $2,614,400
- Impact on labour income:
  0.481 * $3,200,000 = $1,539,200
- Employment required:
  $3,200,000/$10,000 * 0.064 = 20.5 jobs required.

Since the output is the same for 2015 and 2016 (i.e., $3.2 million), the impacts would be the same for both years.

Comparison of the Two Projects

The last step in the analysis is to compare the results of the two projects. The following is a summary of the results (note that for Project 1, we have to combine the impacts of the construction activities and the industrial machinery purchases to get total impact for 2015):

	Project 1	Project 2
GDP ($000s):		
2015	2,656	2,614
2016	2,015	2,614
Labour Income ($000s):		
2015	1,835	1,539
2016	1,368	1,539
Employment (Jobs):		
2015	23.8	20.5
2016	19.5	20.5

It is clear that Project 1 has the larger economic impact for 2015. This result is largely due to the construction phase of the plant. If a longer term view is taken, then Project 2 may in fact yield the larger economic benefit. This can be seen by comparing impacts for 2016, for which Project 2 has a greater effect on GDP, labour income and employment.

It must be remembered that when the economy is in a phase of full employment, an increase in resources in one project may draw resources from other industries, reducing the overall impact. Furthermore, the multipliers used in the above examples reflect the structure of the economy and industry linkages in 2011. If these linkages were to have changed materially by 2015 or 2016, the impacts calculated above will be less valid.

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Table 1: Alberta Simple Multipliers (Industries)

Open Model - Direct and Indirect Impacts

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS11A00	Crop and animal production	0.671	0.238	0.065	1.833
BS11300	Forestry and logging	0.717	0.437	0.052	1.635
BS11400	Fishing, hunting and trapping	0.835	0.417	0.081	1.376
BS11500	Support activities for agriculture and forestry	0.817	0.634	0.094	1.580
BS21100	Oil and gas extraction	0.832	0.231	0.020	1.341
BS21210	Coal mining	0.723	0.312	0.030	1.463
BS21220	Metal ore mining	0.683	0.402	0.045	1.384
BS21230	Non-metal mineral mining and quarrying	0.762	0.261	0.034	1.283
BS21300	Support activities for mining and oil and gas extraction	0.756	0.407	0.044	1.324
BS22110	Electric power generation, transmission and distribution	0.774	0.368	0.032	1.297
BS221A0	Natural gas distribution, water, sewage and other systems	0.958	0.458	0.050	1.242
BS23A00	Residential building construction	0.653	0.451	0.063	1.498
BS23B00	Non-residential building construction	0.633	0.438	0.057	1.493
BS23C10	Transportation engineering construction	0.679	0.451	0.059	1.625
BS23C20	Oil and gas engineering construction	0.682	0.464	0.056	1.600
BS23C30	Electric power engineering construction	0.752	0.365	0.045	1.410
BS23C40	Communication engineering construction	0.534	0.335	0.043	1.506
BS23C50	Other engineering construction	0.666	0.450	0.050	1.492
BS23D00	Repair construction	0.651	0.461	0.064	1.482
BS23E00	Other activities of the construction industry	0.782	0.262	0.041	1.377
BS31110	Animal food manufacturing	0.477	0.237	0.038	1.640
BS31130	Sugar and confectionery product manufacturing	0.573	0.205	0.030	1.298
BS31140	Fruit and vegetable preserving and specialty food manufacturing	0.590	0.340	0.064	1.520
BS31150	Dairy product manufacturing	0.600	0.264	0.068	2.120
BS31160	Meat product manufacturing	0.539	0.314	0.083	2.288
BS31170	Seafood product preparation and packaging	0.371	0.306	0.062	1.191
BS311A0	Miscellaneous food manufacturing	0.682	0.269	0.051	1.826
BS31211	Soft drink and ice manufacturing	0.522	0.310	0.047	1.354
BS31212	Breweries	0.774	0.221	0.034	1.258
BS3121A	Wineries and distilleries	0.830	0.223	0.034	1.399
BS31220	Tobacco manufacturing	-	-	-	-

Table 1

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS31A00	Textile and textile product mills	0.626	0.503	0.126	1.302
BS31B00	Clothing and leather and allied product manufacturing	0.729	0.592	0.151	1.336
BS32100	Wood product manufacturing	0.671	0.454	0.061	1.636
BS32210	Pulp, paper and paperboard mills	0.589	0.303	0.033	1.595
BS32220	Converted paper product manufacturing	0.486	0.367	0.050	1.214
BS32300	Printing and related support activities	0.638	0.466	0.083	1.277
BS32400	Petroleum and coal products manufacturing	0.774	0.221	0.020	2.032
BS32510	Basic chemical manufacturing	0.706	0.168	0.017	1.670
BS32520	Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	0.708	0.190	0.021	1.927
BS32530	Pesticides, fertilizer and other agricultural chemical manufacturing	0.618	0.221	0.025	1.421
BS32540	Pharmaceutical and medicine manufacturing	0.601	0.383	0.070	1.359
BS325A0	Miscellaneous chemical product manufacturing	0.609	0.262	0.032	1.442
BS32610	Plastic product manufacturing	0.578	0.363	0.053	1.419
BS32620	Rubber product manufacturing	0.448	0.369	0.049	1.214
BS327A0	Non-metallic mineral product manufacturing (except cement and concrete products)	0.721	0.359	0.052	1.385
BS32730	Cement and concrete product manufacturing	0.717	0.337	0.043	1.532
BS33100	Primary metal manufacturing	0.310	0.191	0.023	1.254
BS33200	Fabricated metal product manufacturing	0.570	0.416	0.053	1.291
BS33300	Machinery manufacturing	0.516	0.346	0.043	1.330
BS33410	Computer and peripheral equipment manufacturing	0.637	0.486	0.064	1.231
BS334B0	Electronic product manufacturing	0.593	0.410	0.058	1.210
BS335A0	Electrical equipment and component manufacturing	0.555	0.363	0.048	1.228
BS33520	Household appliance manufacturing	0.571	0.402	0.074	1.287
BS33610	Motor vehicle manufacturing	0.407	0.313	0.039	1.212
BS33620	Motor vehicle body and trailer manufacturing	0.474	0.373	0.057	1.273
BS33630	Other motor vehicle parts manufacturing	0.466	0.369	0.059	1.237
BS33640	Aerospace product and parts manufacturing	0.553	0.299	0.035	1.238
BS33650	Railroad rolling stock manufacturing	0.625	0.810	0.121	1.207
BS33660	Ship and boat building	0.616	0.464	0.095	1.224
BS33690	Other transportation equipment manufacturing	0.585	0.396	0.061	1.290
BS33700	Furniture and related product manufacturing	0.641	0.466	0.089	1.429

Table 1

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS33900	Miscelleneous manufacturing	0.669	0.446	0.081	1.372
BS41000	Wholesale trade	0.817	0.481	0.064	1.384
BS4A000	Retail trade	0.868	0.556	0.143	1.378
BS48100	Air transportation	0.621	0.379	0.056	1.718
BS48200	Rail transportation	0.831	0.510	0.057	1.449
BS48300	Water transportation	0.766	0.425	0.089	1.450
BS48400	Truck transportation	0.703	0.450	0.064	1.698
BS48B00	Transit, ground passenger and scenic and sightseeing transportation, taxi and limousine service and support activities for transportation	0.861	0.622	0.106	1.513
BS48600	Pipeline transportation	0.908	0.203	0.018	1.252
BS49A00	Postal service and couriers and messengers	0.755	0.613	0.113	1.501
BS49300	Warehousing and storage	0.855	0.633	0.122	1.313
BS51200	Motion picture and sound recording industries	0.744	0.380	0.102	1.368
BS51510	Radio and television broadcasting	0.661	0.434	0.078	1.276
BS51B00	Publishing, pay/specialty services, telecommunications and other information services	0.824	0.287	0.037	1.255
BS52B00	Depository credit intermediation and monetary authorities	0.890	0.449	0.064	1.244
BS52410	Insurance carriers	0.797	0.473	0.070	1.742
BS53110	Lessors of real estate	0.846	0.286	0.043	1.431
BS5311A	Owner-occupied dwellings	0.965	0.047	0.007	1.144
BS53B00	Rental and leasing services and lessors of non-financial intangible assets (except copyrighted works)	0.799	0.370	0.052	1.397
BS5A000	Other finance, insurance and real estate services and management of companies and enterprises	0.795	0.568	0.078	1.547
BS541C0	Legal, accounting and architectural, engineering and related services	0.827	0.573	0.072	1.338
BS541D0	Computer systems design and other professional, scientific and technical services	0.830	0.554	0.087	1.414
BS54180	Advertising, public relations and related services	0.745	0.529	0.107	1.423
BS56100	Administrative and support services	0.833	0.618	0.125	1.349
BS56200	Waste management and remediation services	0.917	0.355	0.048	1.233
BS61000	Educational services	0.867	0.623	0.216	1.401
BS62000	Health care services and social assistance	0.875	0.559	0.103	1.235

TABLE 1

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS71000	Arts, entertainment and recreation	0.756	0.539	0.168	1.456
BS72000	Accommodation and food services	0.737	0.515	0.164	1.431
BS81100	Repair and maintenance	0.826	0.569	0.099	1.359
BS81A00	Personal services and private households	0.863	0.574	0.226	1.271
BS81300	Professional and similar organisations	0.810	0.636	0.135	1.521
NP61000	Non-profit education services	0.792	0.696	0.144	1.198
NP62400	Non-profit social assistance	0.897	0.816	0.214	1.202
NP71000	Non-profit arts, entertainment and recreation	0.748	0.552	0.166	1.491
NP81310	Religious organizations	0.791	0.638	0.163	1.402
NPA0000	Miscellaneous non-profit institutions serving households	0.755	0.599	0.138	1.488
GS611B0	Educational services	0.867	0.623	0.216	1.401
GS61130	Universities	0.886	0.552	0.075	1.222
GS62200	Hospitals	0.822	0.680	0.114	1.257
GS62300	Nursing and residential care facilities	0.933	0.858	0.116	1.147
GS91100	Other federal government services (including defence)	0.847	0.667	0.083	1.346
GS91200	Other provincial and territorial government services	0.809	0.565	0.076	1.655
GS91300	Other municipal government services	0.850	0.512	0.072	1.369
GS91400	Other aboriginal government services	0.819	0.593	0.138	1.569

Notes: Simple/Total multipliers for GDP, Labour Income and total Output expressed as total impact per dollar of output change. Simple/Total multipliers for employment expressed as total number of jobs required per $10,000 of output change. Please note that all employment impacts are measured in person-years. *Includes labour income of the unincorporated sector.

Table 2: Alberta Type I Multipliers (Industries)

Open Model - Direct and Indirect Impacts

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS11A00	Crop and animal production	2.147	3.136	1.877	1.833
BS11300	Forestry and logging	1.958	1.877	2.035	1.835
BS11400	Fishing, hunting and trapping	1.329	1.517	1.360	1.376
BS11500	Support activities for agriculture and forestry	1.512	1.285	1.270	1.580
BS21100	Oil and gas extraction	1.293	1.890	3.318	1.341
BS21210	Coal mining	X	X	X	1.463
BS21220	Metal ore mining	X	X	X	1.384
BS21230	Non-metal mineral mining and quarrying	X	X	X	1.283
BS21300	Support activities for mining and oil and gas extraction	1.278	1.283	1.380	1.324
BS22110	Electric power generation, transmission and distribution	1.250	1.296	1.504	1.297
BS221A0	Natural gas distribution, water, sewage and other systems	1.131	1.168	1.220	1.242
BS23A00	Residential building construction	1.642	1.540	1.625	1.498
BS23B00	Non-residential building construction	1.700	1.579	1.641	1.493
BS23C10	Transportation engineering construction	1.923	1.666	1.703	1.625
BS23C20	Oil and gas engineering construction	1.937	1.670	1.666	1.600
BS23C30	Electric power engineering construction	1.381	1.522	1.611	1.410
BS23C40	Communication engineering construction	2.096	2.053	2.287	1.506
BS23C50	Other engineering construction	1.612	1.501	1.681	1.492
BS23D00	Repair construction	1.605	1.490	1.687	1.482
BS23E00	Other activities of the construction industry	1.327	1.592	1.594	1.377
BS31110	Animal food manufacturing	2.478	2.128	2.223	1.640
BS31130	Sugar and confectionery product manufacturing	X	X	X	1.298
BS31140	Fruit and vegetable preserving and specialty food manufacturing	X	X	X	1.520
BS31150	Dairy product manufacturing	X	X	X	2.120
BS31160	Meat product manufacturing	3.109	2.350	3.035	2.288
BS31170	Seafood product preparation and packaging	1.354	1.234	1.162	1.191
BS311A0	Miscellaneous food manufacturing	2.390	2.214	2.091	1.826
BS31211	Soft drink and ice manufacturing	X	X	X	1.354
BS31212	Breweries	X	X	X	1.258
BS3121A	Wineries and distilleries	1.327	1.708	1.709	1.399
BS31220	Tobacco manufacturing	-	-	-	-

TABLE 2

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS31A00	Textile and textile product mills	X	X	X	1.302
BS31B00	Clothing and leather and allied product manufacturing	X	X	X	1.336
BS32100	Wood product manufacturing	1.752	1.609	1.623	1.636
BS32210	Pulp, paper and paperboard mills	1.958	2.115	2.562	1.595
BS32220	Converted paper product manufacturing	X	X	X	1.214
BS32300	Printing and related support activities	1.280	1.206	1.160	1.277
BS32400	Petroleum and coal products manufacturing	5.353	5.935	10.711	2.032
BS32510	Basic chemical manufacturing	1.953	3.680	4.113	1.670
BS32520	Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	2.437	3.535	4.178	1.927
BS32530	Pesticides, fertilizer and other agricultural chemical manufacturing	1.593	1.915	2.124	1.421
BS32540	Pharmaceutical and medicine manufacturing	X	X	X	1.359
BS325A0	Miscellaneous chemical product manufacturing	X	X	X	1.442
BS32610	Plastic product manufacturing	1.504	1.322	1.299	1.419
BS32620	Rubber product manufacturing	1.333	1.212	1.252	1.214
BS327A0	Non-metallic mineral product manufacturing (except cement and concrete products)	1.389	1.433	1.393	1.385
BS32730	Cement and concrete product manufacturing	X	X	X	1.532
BS33100	Primary metal manufacturing	X	X	X	1.254
BS33200	Fabricated metal product manufacturing	1.348	1.273	1.302	1.291
BS33300	Machinery manufacturing	1.456	1.404	1.457	1.330
BS33410	Computer and peripheral equipment manufacturing	X	X	X	1.231
BS334B0	Electronic product manufacturing	X	X	X	1.210
BS335A0	Electrical equipment and component manufacturing	X	X	X	1.228
BS33520	Household appliance manufacturing	X	X	X	1.287
BS33610	Motor vehicle manufacturing	X	X	X	1.212
BS33620	Motor vehicle body and trailer manufacturing	X	X	X	1.273
BS33630	Other motor vehicle parts manufacturing	X	X	X	1.237
BS33640	Aerospace product and parts manufacturing	X	X	X	1.238
BS33650	Railroad rolling stock manufacturing	X	X	X	1.207
BS33660	Ship and boat building	X	X	X	1.224
BS33690	Other transportation equipment manufacturing	1.333	1.291	1.260	1.290
BS33700	Furniture and related product manufacturing	1.515	1.381	1.309	1.429

TABLE 2

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS33900	Miscelleneous manufacturing	X	X	X	1.372
BS41000	Wholesale trade	1.351	1.324	1.382	1.384
BS4A000	Retail trade	1.325	1.260	1.146	1.378
BS48100	Air transportation	X	X	X	1.718
BS48200	Rail transportation	X	X	X	1.449
BS48300	Water transportation	X	X	X	1.450
BS48400	Truck transportation	1.813	1.616	1.615	1.698
BS48B00	Transit, ground passenger and scenic and sightseeing transportation, taxi and limousine service and support activities for transportation	1.444	1.315	1.292	1.513
BS48600	Pipeline transportation	1.169	1.627	2.480	1.252
BS49A00	Postal service and couriers and messengers	1.495	1.300	1.258	1.501
BS49300	Warehousing and storage	1.247	1.175	1.136	1.313
BS51200	Motion picture and sound recording industries	1.405	1.466	1.270	1.368
BS51510	Radio and television broadcasting	X	X	X	1.276
BS51B00	Publishing, pay/specialty services, telecommunications and other information services	X	X	X	1.255
BS52B00	Depository credit intermediation and monetary authorities	1.184	1.238	1.277	1.244
BS52410	Insurance carriers	2.321	3.086	3.546	1.742
BS53110	Lessors of real estate	1.400	2.072	2.454	1.431
BS5311A	Owner-occupied dwellings	1.088	0.000	0.000	1.144
BS53B00	Rental and leasing services and lessors of non-financial intangible assets (except copyrighted works)	1.361	1.478	1.592	1.397
BS5A000	Other finance, insurance and real estate services and management of companies and enterprises	1.638	1.483	1.571	1.547
BS541C0	Legal, accounting and architectural, engineering and related services	1.300	1.239	1.337	1.338
BS541D0	Computer systems design and other professional, scientific and technical services	1.406	1.350	1.380	1.414
BS54180	Advertising, public relations and related services	1.477	1.366	1.306	1.423
BS56100	Administrative and support services	1.309	1.230	1.186	1.349
BS56200	Waste management and remediation services	1.152	1.245	1.296	1.233
BS61000	Educational services	1.354	1.248	1.113	1.401
BS62000	Health care services and social assistance	1.182	1.158	1.148	1.235

TABLE 2

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS71000	Arts, entertainment and recreation	1.519	1.419	1.230	1.456
BS72000	Accommodation and food services	1.412	1.310	1.164	1.431
BS81100	Repair and maintenance	1.311	1.234	1.225	1.359
BS81A00	Personal services and private households	1.214	1.181	1.075	1.271
BS81300	Professional and similar organisations	1.564	1.379	1.319	1.521
NP61000	Non-profit education services	1.170	1.105	1.083	1.198
NP62400	Non-profit social assistance	1.143	1.086	1.055	1.202
NP71000	Non-profit arts, entertainment and recreation	1.603	1.383	1.193	1.491
NP81310	Religious organizations	1.414	1.253	1.154	1.402
NPA0000	Miscellaneous non-profit institutions serving households	1.599	1.379	1.261	1.488
GS611B0	Educational services	1.354	1.248	1.113	1.401
GS61130	Universities	1.153	1.149	1.211	1.222
GS62200	Hospitals	1.227	1.163	1.192	1.257
GS62300	Nursing and residential care facilities	1.096	1.067	1.104	1.147
GS91100	Other federal government services (including defence)	1.286	1.209	1.310	1.346
GS91200	Other provincial and territorial government services	2.175	2.028	2.857	1.655
GS91300	Other municipal government services	1.316	1.317	1.404	1.369
GS91400	Other aboriginal government services	1.725	1.625	1.563	1.569

Notes: Type I/II multipliers for GDP expressed as total impact per direct change in GDP.
Type I/II multipliers for Labour Income expressed as total impact per direct change in Labour Income.
Type I/II multipliers for total Output expressed as total impact per direct change in output.
Type I/II multipliers for Employment expressed as total jobs required per direct job required.
Please note that all employment impacts are measured in person-years.

You must know the direct change in GDP at basic prices, labour income or number of direct jobs required before using these multipliers. *Includes labour income of the unincorporated sector.

Table 3: Alberta Simple Multipliers (Commodities at Basic Prices)

Open Model - Direct and Indirect Impacts

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M111B	Grains and other crop products	0.720	0.206	0.039	1.543
M112A	Live animals	0.601	0.278	0.099	2.254
M11D0	Other farm products	0.678	0.243	0.064	1.772
M11E0	Forestry products and services	0.718	0.436	0.052	1.823
M1140	Fish and seafood, live, fresh, chilled or frozen	0.644	0.309	0.094	2.036
M1150	Support services related to farming and forestry	0.700	0.389	0.086	1.902
M21B0	Mineral fuels	0.830	0.229	0.020	1.344
M2122	Metal ores and concentrates	0.683	0.402	0.045	1.384
M2123	Non-metallic minerals	0.758	0.271	0.035	1.294
M2130	Mineral support services	0.756	0.403	0.044	1.322
M21A0	Mineral and oil and gas exploration	0.827	0.315	0.026	1.362
M2200	Utilities	0.817	0.397	0.041	1.307
M23A0	Residential construction	0.653	0.451	0.063	1.498
M23B0	Non-residential buildings	0.633	0.438	0.057	1.493
M23C0	Engineering construction	0.683	0.457	0.056	1.588
M23D0	Repair construction services	0.651	0.461	0.064	1.482
M31C0	Food and non-alcoholic beverages	0.581	0.292	0.067	2.030
M312A	Alcoholic beverages and tobacco products	0.789	0.221	0.034	1.296
M31D0	Textile products, clothing, and products of leather and similar materials	0.682	0.540	0.138	1.330
M3210	Wood products	0.674	0.455	0.062	1.633
M3220	Wood pulp, paper and paper products and paper stock	0.578	0.310	0.035	1.547
M3230	Printed products and services	0.643	0.465	0.083	1.280
M3240	Refined petroleum products (except petrochemicals)	0.774	0.221	0.020	2.030
M3250	Chemical products	0.691	0.198	0.021	1.687
M3260	Plastic and rubber products	0.571	0.363	0.052	1.410
M3270	Non-metallic mineral products	0.716	0.342	0.045	1.491
M3310	Primary metallic products	0.323	0.204	0.025	1.261
M3320	Fabricated metallic products	0.567	0.412	0.053	1.299
M3330	Industrial machinery	0.523	0.350	0.044	1.330
M334C	Computer and electronic products	0.599	0.414	0.058	1.213
M3350	Electrical equipment, appliances and components	0.555	0.366	0.048	1.232
M336A	Transportation equipment	0.508	0.355	0.051	1.263
M3363	Motor vehicle parts	0.519	0.397	0.059	1.240

TABLE 3

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M3370	Furniture and related products	0.636	0.462	0.087	1.424
M3B00	Other manufactured products and custom work	0.642	0.413	0.069	1.397
M4100	Wholesale margins and commissions	0.808	0.474	0.064	1.389
M4A00	Retail margins, sales of used goods and commissions	0.862	0.551	0.141	1.379
M4B00	Transportation and related services	0.768	0.432	0.063	1.551
M51D0	Information and cultural services	0.743	0.440	0.072	1.348
M51E0	Published and recorded media products	0.764	0.430	0.071	1.339
M5170	Telecommunications	0.830	0.216	0.026	1.216
M52C0	Depository credit intermediation	0.878	0.452	0.064	1.275
M5F00	Other finance, insurance and rights to non-financial intangible assets	0.810	0.552	0.076	1.544
M53D0	Real estate, rental and leasing	0.823	0.360	0.056	1.430
M541E	Professional services excluding software and research and development	0.826	0.559	0.078	1.369
M5E00	Software	0.834	0.532	0.072	1.373
M5417	Research and development	0.834	0.457	0.058	1.436
M5G00	Administrative and support, head office, waste management and remediation services	0.820	0.492	0.087	1.413
M6100	Education services	0.876	0.635	0.128	1.303
M6200	Health and social assistance services	0.871	0.585	0.108	1.246
M7100	Amusement, recreation and gambling services	0.767	0.537	0.145	1.452
M7200	Accommodation and food services	0.740	0.515	0.162	1.429
M8100	Other services	0.827	0.557	0.119	1.343
M9A00	Sales of other services by Non-Profit Institutions Serving Households	0.755	0.588	0.141	1.490
M9B00	Sales of other government services	0.832	0.620	0.078	1.470
N0000	Services provided by Non-Profit Institutions Serving Households	0.788	0.652	0.157	1.391
G6100	Education services provided by government sector	0.913	0.755	0.110	1.216
G6200	Health services provided by government sector	0.839	0.707	0.115	1.240
G9110	Other federal government services	0.846	0.665	0.083	1.348
G9120	Other provincial and territorial government services	0.809	0.565	0.076	1.655
G9130	Other municipal government services	0.850	0.512	0.072	1.369
G9140	Other aboriginal government services	0.819	0.593	0.138	1.569

Notes: Simple/Total multipliers for GDP, Labour Income and total Output expressed as total impact per dollar of output change. Simple/Total multipliers for employment expressed as total number of jobs required per $10,000 of output change. Please note that all employment impacts are measured in person-years. *Includes labour income of the unincorporated sector.

Table 4: Alberta Simple Multipliers (Commodities at Purchaser Prices)

Open Model - Direct and Indirect Impacts

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M111B	Grains and other crop products	0.691	0.198	0.038	1.481
M112A	Live animals	0.582	0.270	0.096	2.185
M11D0	Other farm products	0.657	0.235	0.062	1.717
M11E0	Forestry products and services	0.711	0.432	0.051	1.807
M1140	Fish and seafood, live, fresh, chilled or frozen	0.470	0.225	0.069	1.487
M1150	Support services related to farming and forestry	0.700	0.389	0.086	1.902
M21B0	Mineral fuels	0.782	0.216	0.019	1.268
M2122	Metal ores and concentrates	0.683	0.402	0.045	1.384
M2123	Non-metallic minerals	0.513	0.183	0.024	0.876
M2130	Mineral support services	0.756	0.403	0.044	1.322
M21A0	Mineral and oil and gas exploration	0.827	0.315	0.026	1.362
M2200	Utilities	0.793	0.385	0.040	1.269
M23A0	Residential construction	0.624	0.430	0.060	1.431
M23B0	Non-residential buildings	0.630	0.436	0.056	1.485
M23C0	Engineering construction	0.683	0.457	0.056	1.587
M23D0	Repair construction services	0.622	0.440	0.061	1.417
M31C0	Food and non-alcoholic beverages	0.437	0.219	0.050	1.526
M312A	Alcoholic beverages and tobacco products	0.498	0.140	0.021	0.818
M31D0	Textile products, clothing, and products of leather and similar materials	0.448	0.355	0.091	0.874
M3210	Wood products	0.467	0.316	0.043	1.133
M3220	Wood pulp, paper and paper products and paper stock	0.547	0.293	0.033	1.463
M3230	Printed products and services	0.447	0.323	0.057	0.889
M3240	Refined petroleum products (except petrochemicals)	0.590	0.169	0.015	1.547
M3250	Chemical products	0.602	0.173	0.018	1.469
M3260	Plastic and rubber products	0.383	0.244	0.035	0.946
M3270	Non-metallic mineral products	0.573	0.274	0.036	1.194
M3310	Primary metallic products	0.321	0.202	0.024	1.251
M3320	Fabricated metallic products	0.501	0.364	0.047	1.148
M3330	Industrial machinery	0.415	0.278	0.035	1.056
M334C	Computer and electronic products	0.503	0.348	0.049	1.019
M3350	Electrical equipment, appliances and components	0.442	0.291	0.039	0.981
M336A	Transportation equipment	0.438	0.307	0.044	1.091
M3363	Motor vehicle parts	0.333	0.255	0.038	0.795

TABLE 4

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M3370	Furniture and related products	0.504	0.366	0.069	1.128
M3B00	Other manufactured products and custom work	0.532	0.342	0.057	1.159
M4100	Wholesale margins and commissions	0.808	0.474	0.064	1.389
M4A00	Retail margins, sales of used goods and commissions	0.862	0.551	0.141	1.379
M4B00	Transportation and related services	0.755	0.425	0.062	1.524
M51D0	Information and cultural services	0.741	0.436	0.072	1.336
M51E0	Published and recorded media products	0.598	0.337	0.056	1.048
M5170	Telecommunications	0.793	0.207	0.025	1.162
M52C0	Depository credit intermediation	0.877	0.452	0.064	1.273
M5F00	Other finance, insurance and rights to non-fir ancial intangible assets	0.810	0.552	0.076	1.544
M53D0	Real estate, rental and leasing	0.804	0.351	0.054	1.396
M541E	Professional services excluding software and research and development	0.799	0.541	0.075	1.325
M5E00	Software	0.827	0.528	0.071	1.362
M5417	Research and development	0.834	0.457	0.058	1.436
M5G00	Administrative and support, head office, waste management and remediation services	0.807	0.485	0.086	1.391
M6100	Education services	0.868	0.629	0.127	1.291
M6200	Health and social assistance services	0.871	0.585	0.108	1.246
M7100	Amusement, recreation and gambling services	0.622	0.435	0.117	1.177
M7200	Accommodation and food services	0.706	0.491	0.155	1.363
M8100	Other services	0.792	0.533	0.114	1.287
M9A00	Sales of other services by Non-Profit Institutions Serving Households	0.755	0.588	0.141	1.490
M9B00	Sales of other government services	0.832	0.620	0.078	1.470
N0000	Services provided by Non-Profit Institutions Serving Households	0.788	0.652	0.157	1.391
G6100	Education services provided by government sector	0.913	0.755	0.110	1.216
G6200	Health services provided by government sector	0.839	0.707	0.115	1.240
G9110	Other federal government services	0.846	0.665	0.083	1.348
G9120	Other provincial and territorial government services	0.809	0.565	0.076	1.655
G9130	Other municipal government services	0.850	0.512	0.072	1.369
G9140	Other aboriginal government services	0.819	0.593	0.138	1.569

Notes: Simple/Total multipliers for GDP, Labour Income and total Output expressed as total impact per dollar of output change. Simple/Total multipliers for employment expressed as total number of jobs required per $10,000 of output change. Please note that all employment impacts are measured in person-years. *Includes labour income of the unincorporated sector.

Table 5: Alberta Total Multipliers (Industries)

Closed Model - Direct, Indirect and Induced Impacts

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS11A00	Crop and animal production	0.760	0.277	0.073	1.984
BS11300	Forestry and logging	0.844	0.492	0.064	2.049
BS11400	Fishing, hunting and trapping	0.985	0.482	0.095	1.631
BS11500	Support activities for agriculture and forestry	1.041	0.732	0.114	1.958
BS21100	Oil and gas extraction	0.907	0.264	0.027	1.468
BS21210	Coal mining	0.815	0.352	0.038	1.618
BS21220	Metal ore mining	0.836	0.469	0.059	1.642
BS21230	Non-metal mineral mining and quarrying	0.845	0.297	0.041	1.424
BS21300	Support activities for mining and oil and gas extraction	0.891	0.466	0.057	1.554
BS22110	Electric power generation, transmission and distribution	0.884	0.416	0.042	1.483
BS221A0	Natural gas distribution, water, sewage and other systems	1.119	0.527	0.065	1.514
BS23A00	Residential building construction	0.812	0.520	0.078	1.767
BS23B00	Non-residential building construction	0.786	0.505	0.071	1.752
BS23C10	Transportation engineering construction	0.839	0.521	0.073	1.896
BS23C20	Oil and gas engineering construction	0.839	0.533	0.071	1.866
BS23C30	Electric power engineering construction	0.878	0.420	0.057	1.623
BS23C40	Communication engineering construction	0.650	0.386	0.053	1.702
BS23C50	Other engineering construction	0.817	0.516	0.064	1.747
BS23D00	Repair construction	0.814	0.532	0.079	1.758
BS23E00	Other activities of the construction industry	0.874	0.302	0.050	1.531
BS31110	Animal food manufacturing	0.559	0.272	0.045	1.778
BS31130	Sugar and confectionery product manufacturing	0.639	0.234	0.036	1.409
BS31140	Fruit and vegetable preserving and specialty food manufacturing	0.708	0.391	0.075	1.719
BS31150	Dairy product manufacturing	0.695	0.306	0.076	2.282
BS31160	Meat product manufacturing	0.655	0.365	0.093	2.485
BS31170	Seafood product preparation and packaging	0.487	0.356	0.073	1.386
BS311A0	Miscellaneous food manufacturing	0.777	0.311	0.059	1.988
BS31211	Soft drink and ice manufacturing	0.627	0.356	0.057	1.531
BS31212	Breweries	0.844	0.251	0.040	1.376
BS3121A	Wineries and distilleries	0.907	0.256	0.041	1.529
BS31220	Tobacco manufacturing	-	-	-	-

TABLE 5

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS31A00	Textile and textile product mills	0.818	0.586	0.144	1.628
BS31B00	Clothing and leather and allied product manufacturing	0.960	0.692	0.173	1.727
BS32100	Wood product manufacturing	0.817	0.517	0.075	1.883
BS32210	Pulp, paper and paperboard mills	0.682	0.343	0.041	1.752
BS32220	Converted paper product manufacturing	0.605	0.419	0.061	1.415
BS32300	Printing and related support activities	0.804	0.538	0.098	1.559
BS32400	Petroleum and coal products manufacturing	0.845	0.251	0.026	2.151
BS32510	Basic chemical manufacturing	0.760	0.191	0.022	1.761
BS32520	Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	0.769	0.217	0.027	2.032
BS32530	Pesticides, fertilizer and other agricultural chemical manufacturing	0.690	0.252	0.032	1.542
BS32540	Pharmaceutical and medicine manufacturing	0.740	0.444	0.083	1.595
BS325A0	Miscellaneous chemical product manufacturing	0.697	0.300	0.040	1.590
BS32610	Plastic product manufacturing	0.700	0.416	0.064	1.625
BS32620	Rubber product manufacturing	0.562	0.419	0.059	1.406
BS327A0	Non-metallic mineral product manufacturing (except cement and concrete products)	0.840	0.410	0.063	1.587
BS32730	Cement and concrete product manufacturing	0.827	0.385	0.054	1.719
BS33100	Primary metal manufacturing	0.372	0.218	0.029	1.359
BS33200	Fabricated metal product manufacturing	0.711	0.477	0.066	1.529
BS33300	Machinery manufacturing	0.633	0.397	0.054	1.528
BS33410	Computer and peripheral equipment manufacturing	0.802	0.558	0.079	1.509
BS334B0	Electronic product manufacturing	0.734	0.471	0.071	1.447
BS335A0	Electrical equipment and component manufacturing	0.671	0.414	0.058	1.425
BS33520	Household appliance manufacturing	0.706	0.460	0.086	1.516
BS33610	Motor vehicle manufacturing	0.504	0.354	0.048	1.374
BS33620	Motor vehicle body and trailer manufacturing	0.605	0.430	0.069	1.494
BS33630	Other motor vehicle parts manufacturing	0.589	0.422	0.070	1.445
BS33640	Aerospace product and parts manufacturing	0.642	0.337	0.043	1.388
BS33650	Railroad rolling stock manufacturing	0.890	0.925	0.145	1.655
BS33660	Ship and boat building	0.779	0.534	0.110	1.500
BS33690	Other transportation equipment manufacturing	0.724	0.456	0.074	1.525
BS33700	Furniture and related product manufacturing	0.807	0.538	0.105	1.710

TABLE 5

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS33900	Miscelleneous manufacturing	0.831	0.517	0.096	1.647
BS41000	Wholesale trade	0.982	0.552	0.079	1.663
BS4A000	Retail trade	1.076	0.646	0.162	1.729
BS48100	Air transportation	0.747	0.434	0.068	1.932
BS48200	Rail transportation	0.995	0.581	0.072	1.726
BS48300	Water transportation	0.914	0.489	0.103	1.700
BS48400	Truck transportation	0.860	0.518	0.079	1.963
BS48B00	Transit, ground passenger and scenic and sightseeing transportation, taxi and limousine service and support activities for transportation	1.076	0.715	0.126	1.876
BS48600	Pipeline transportation	0.968	0.229	0.023	1.354
BS49A00	Postal service and couriers and messengers	0.966	0.705	0.133	1.858
BS49300	Warehousing and storage	1.076	0.729	0.143	1.688
BS51200	Motion picture and sound recording industries	0.888	0.442	0.115	1.612
BS51510	Radio and television broadcasting	0.812	0.500	0.092	1.533
BS51B00	Publishing, pay/specialty services, telecommunications and other information services	0.916	0.327	0.046	1.411
BS52B00	Depository credit intermediation and monetary authorities	1.039	0.514	0.078	1.497
BS52410	Insurance carriers	0.966	0.547	0.086	2.029
BS53110	Lessors of real estate	0.948	0.330	0.052	1.604
BS5311A	Owner-occupied dwellings	0.981	0.054	0.008	1.172
BS53B00	Rental and leasing services and lessors of non-financial intangible assets (except copyrighted works)	0.928	0.426	0.064	1.615
BS5A000	Other finance, insurance and real estate services and management of companies and enterprises	0.997	0.655	0.097	1.889
BS541C0	Legal, accounting and architectural, engineering and related services	1.029	0.661	0.091	1.680
BS541D0	Computer systems design and other professional, scientific and technical services	1.029	0.640	0.105	1.751
BS54180	Advertising, public relations and related services	0.942	0.615	0.126	1.757
BS56100	Administrative and support services	1.066	0.719	0.146	1.743
BS56200	Waste management and remediation services	1.040	0.409	0.060	1.442
BS61000	Educational services	1.107	0.728	0.238	1.807
BS62000	Health care services and social assistance	1.080	0.649	0.124	1.583

TABLE 5

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS71000	Arts, entertainment and recreation	0.963	0.629	0.187	1.807
BS72000	Accommodation and food services	0.939	0.603	0.183	1.773
BS81100	Repair and maintenance	1.034	0.660	0.118	1.712
BS81A00	Personal services and private households	1.100	0.677	0.248	1.672
BS81300	Professional and similar organisations	1.048	0.740	0.157	1.924
NP61000	Non-profit education services	1.046	0.806	0.167	1.627
NP62400	Non-profit social assistance	1.202	0.948	0.242	1.718
NP71000	Non-profit arts, entertainment and recreation	0.958	0.643	0.186	1.846
NP81310	Religious organizations	1.024	0.739	0.185	1.796
NPA0000	Miscellaneous non-profit institutions serving households	0.976	0.695	0.159	1.862
GS611B0	Educational services	1.107	0.728	0.238	1.807
GS61130	Universities	1.066	0.630	0.092	1.527
GS62200	Hospitals	1.048	0.778	0.135	1.640
GS62300	Nursing and residential care facilities	1.216	0.981	0.142	1.625
GS91100	Other federal government services (including defence)	1.051	0.756	0.102	1.692
GS91200	Other provincial and territorial government services	0.998	0.648	0.093	1.976
GS91300	Other municipal government services	1.005	0.580	0.086	1.632
GS91400	Other aboriginal government services	1.038	0.688	0.158	1.939

Notes: Simple/Total multipliers for GDP, Labour Income and Output expressed as total impact per dollar of output change. Simple/Total multipliers for employment expressed as total number of jobs required per $10,000 of output change. Please note that all employment impacts are measured in person-years. *Includes labour income of the unincorporated sector.

Table 6: Alberta Type II Multipliers (Industries)

Closed Model - Direct , Indirect and Induced Impacts

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS11A00	Crop and animal production	2.434	3.649	2.116	1.984
BS11300	Forestry and logging	2.303	2.113	2.490	2.049
BS11400	Fishing, hunting and trapping	1.569	1.754	1.591	1.631
BS11500	Support activities for agriculture and forestry	1.926	1.482	1.548	1.958
BS21100	Oil and gas extraction	1.410	2.156	4.453	1.468
BS21210	Coal mining	X	X	X	1.618
BS21220	Metal ore mining	X	X	X	1.642
BS21230	Non-metal mineral mining and quarrying	X	X	X	1.424
BS21300	Support activities for mining and oil and gas extraction	1.508	1.469	1.769	1.554
BS22110	Electric power generation, transmission and distribution	1.427	1.464	1.973	1.483
BS221A0	Natural gas distribution, water, sewage and other systems	1.320	1.346	1.580	1.514
BS23A00	Residential building construction	2.042	1.776	2.001	1.767
BS23B00	Non-residential building construction	2.111	1.819	2.048	1.752
BS23C10	Transportation engineering construction	2.376	1.923	2.129	1.896
BS23C20	Oil and gas engineering construction	2.383	1.915	2.093	1.866
BS23C30	Electric power engineering construction	1.612	1.750	2.023	1.623
BS23C40	Communication engineering construction	2.550	2.361	2.856	1.702
BS23C50	Other engineering construction	1.976	1.719	2.146	1.747
BS23D00	Repair construction	2.007	1.719	2.081	1.758
BS23E00	Other activities of the construction industry	1.481	1.832	1.918	1.531
BS31110	Animal food manufacturing	2.903	2.448	2.664	1.778
BS31130	Sugar and confectionery product manufacturing	X	X	X	1.409
BS31140	Fruit and vegetable preserving and specialty food manufacturing	X	X	X	1.719
BS31150	Dairy product manufacturing	X	X	X	2.282
BS31160	Meat product manufacturing	3.779	2.727	3.428	2.485
BS31170	Seafood product preparation and packaging	1.774	1.437	1.361	1.386
BS311A0	Miscellaneous food manufacturing	2.727	2.557	2.454	1.988
BS31211	Soft drink and ice manufacturing	X	X	X	1.531
BS31212	Breweries	X	X	X	1.376
BS3121A	Wineries and distilleries	1.450	1.965	2.062	1.529
BS31220	Tobacco manufacturing	-	-	-	-

TABLE 6

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS31A00	Textile and textile product mills	X	X	X	1.628
BS31B00	Clothing and leather and allied product manufacturing	X	X	X	1.727
BS32100	Wood product manufacturing	2.134	1.834	1.978	1.883
BS32210	Pulp, paper and paperboard mills	2.266	2.397	3.228	1.752
BS32220	Converted paper product manufacturing	X	X	X	1.415
BS32300	Printing and related support activities	1.614	1.393	1.375	1.559
BS32400	Petroleum and coal products manufacturing	5.838	6.757	14.214	2.151
BS32510	Basic chemical manufacturing	2.102	4.191	5.334	1.761
BS32520	Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	2.650	4.033	5.314	2.032
BS32530	Pesticides, fertilizer and other agricultural chemical manufacturing	1.778	2.185	2.680	1.542
BS32540	Pharmaceutical and medicine manufacturing	X	X	X	1.595
BS325A0	Miscellaneous chemical product manufacturing	X	X	X	1.590
BS32610	Plastic product manufacturing	1.821	1.515	1.574	1.625
BS32620	Rubber product manufacturing	1.672	1.374	1.521	1.406
BS327A0	Non-metallic mineral product manufacturing (except cement and concrete products)	1.618	1.639	1.687	1.587
BS32730	Cement and concrete product manufacturing	X	X	X	1.719
BS33100	Primary metal manufacturing	X	X	X	1.359
BS33200	Fabricated metal product manufacturing	1.682	1.461	1.618	1.529
BS33300	Machinery manufacturing	1.785	1.610	1.818	1.528
BS33410	Computer and peripheral equipment manufacturing	X	X	X	1.509
BS334B0	Electronic product manufacturing	X	X	X	1.447
BS335A0	Electrical equipment and component manufacturing	X	X	X	1.425
BS33520	Household appliance manufacturing	X	X	X	1.516
BS33610	Motor vehicle manufacturing	X	X	X	1.374
BS33620	Motor vehicle body and trailer manufacturing	X	X	X	1.494
BS33630	Other motor vehicle parts manufacturing	X	X	X	1.445
BS33640	Aerospace product and parts manufacturing	X	X	X	1.388
BS33650	Railroad rolling stock manufacturing	X	X	X	1.655
BS33660	Ship and boat building	X	X	X	1.500
BS33690	Other transportation equipment manufacturing	1.648	1.487	1.523	1.525
BS33700	Furniture and related product manufacturing	1.908	1.595	1.533	1.710

TABLE 6

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS33900	Miscelleneous manufacturing	X	X	X	1.647
BS41000	Wholesale trade	1.624	1.522	1.708	1.663
BS4A000	Retail trade	1.642	1.464	1.299	1.729
BS48100	Air transportation	X	X	X	1.932
BS48200	Rail transportation	X	X	X	1.726
BS48300	Water transportation	X	X	X	1.700
BS48400	Truck transportation	2.216	1.861	1.975	1.963
BS48B00	Transit, ground passenger and scenic and sightseeing transportation, taxi and limousine service and support activities for transportation	1.803	1.512	1.532	1.876
BS48600	Pipeline transportation	1.247	1.837	3.260	1.354
BS49A00	Postal service and couriers and messengers	1.912	1.494	1.473	1.858
BS49300	Warehousing and storage	1.570	1.354	1.325	1.688
BS51200	Motion picture and sound recording industries	1.677	1.708	1.435	1.612
BS51510	Radio and television broadcasting	X	X	X	1.533
BS51B00	Publishing, pay/specialty services, telecommunications and other information services	X	X	X	1.411
BS52B00	Depository credit intermediation and monetary authorities	1.384	1.418	1.550	1.497
BS52410	Insurance carriers	2.814	3.566	4.331	2.029
BS53110	Lessors of real estate	1.568	2.392	2.989	1.604
BS5311A	Owner-occupied dwellings	1.107	0.000	0.000	1.172
BS53B00	Rental and leasing services and lessors of non-financial intangible assets (except copyrighted works)	1.581	1.701	1.954	1.615
BS5A000	Other finance, insurance and real estate services and management of companies and enterprises	2.054	1.713	1.944	1.889
BS541C0	Legal, accounting and architectural, engineering and related services	1.618	1.429	1.682	1.680
BS541D0	Computer systems design and other professional, scientific and technical services	1.743	1.561	1.670	1.751
BS54180	Advertising, public relations and related services	1.867	1.587	1.526	1.757
BS56100	Administrative and support services	1.675	1.431	1.390	1.743
BS56200	Waste management and remediation services	1.307	1.433	1.600	1.442
BS61000	Educational services	1.729	1.457	1.227	1.807
BS62000	Health care services and social assistance	1.460	1.343	1.354	1.583

TABLE 6

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS71000	Arts, entertainment and recreation	1.935	1.657	1.370	1.807
BS72000	Accommodation and food services	1.799	1.533	1.295	1.773
BS81100	Repair and maintenance	1.642	1.430	1.463	1.712
BS81A00	Personal services and private households	1.547	1.393	1.178	1.672
BS81300	Professional and similar organisations	2.024	1.603	1.532	1.924
NP61000	Non-profit education services	1.545	1.280	1.258	1.627
NP62400	Non-profit social assistance	1.532	1.262	1.193	1.718
NP71000	Non-profit arts, entertainment and recreation	2.053	1.612	1.332	1.846
NP81310	Religious organizations	1.830	1.452	1.305	1.796
NPA0000	Miscellaneous non-profit institutions serving households	2.068	1.601	1.447	1.862
GS611B0	Educational services	1.729	1.457	1.227	1.807
GS61130	Universities	1.387	1.312	1.478	1.527
GS62200	Hospitals	1.565	1.332	1.409	1.640
GS62300	Nursing and residential care facilities	1.428	1.219	1.351	1.625
GS91100	Other federal government services (including defence)	1.597	1.370	1.606	1.692
GS91200	Other provincial and territorial government services	2.684	2.324	3.512	1.976
GS91300	Other municipal government services	1.557	1.491	1.684	1.632
GS91400	Other aboriginal government services	2.186	1.886	1.791	1.939

Notes: Type I/II multipliers for GDP expressed as total impact per direct change in GDP.
Type I/II multipliers for Labour Income expressed as total impact per direct change in Labour Income.
Type I/II multipliers for total Output expressed as total impact per direct change in output.
Type I/II multipliers for Employment expressed as total jobs required per direct job required.
Please note that all employment impacts are measured in person-years.

You must know the direct change in GDP at basic prices, labour income or number of direct jobs required before using these multipliers. *Includes labour income of the unincorporated sector.

Table 7: Alberta Total Multipliers (Commodities at Basic Prices)

Closed Model - Direct, Indirect and Induced Impacts

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M111B	Grains and other crop products	0.796	0.239	0.046	1.671
M112A	Live animals	0.707	0.325	0.109	2.435
M11D0	Other farm products	0.769	0.282	0.072	1.927
M11E0	Forestry products and services	0.844	0.490	0.063	2.037
M1140	Fish and seafood, live, fresh, chilled or frozen	0.761	0.359	0.105	2.233
M1150	Support services related to farming and forestry	0.839	0.450	0.098	2.138
M21B0	Mineral fuels	0.904	0.261	0.027	1.470
M2122	Metal ores and concentrates	0.836	0.469	0.059	1.642
M2123	Non-metallic minerals	0.845	0.308	0.043	1.440
M2130	Mineral support services	0.890	0.461	0.056	1.549
M21A0	Mineral and oil and gas exploration	0.929	0.360	0.036	1.535
M2200	Utilities	0.941	0.450	0.053	1.517
M23A0	Residential construction	0.812	0.520	0.078	1.767
M23B0	Non-residential buildings	0.786	0.505	0.071	1.752
M23C0	Engineering construction	0.838	0.524	0.070	1.850
M23D0	Repair construction services	0.814	0.532	0.079	1.758
M31C0	Food and non-alcoholic beverages	0.686	0.337	0.077	2.208
M312A	Alcoholic beverages and tobacco products	0.860	0.253	0.040	1.418
M31D0	Textile products, clothing, and products of leather and similar materials	0.890	0.631	0.157	1.683
M3210	Wood products	0.821	0.519	0.076	1.882
M3220	Wood pulp, paper and paper products and paper stock	0.674	0.351	0.044	1.709
M3230	Printed products and services	0.809	0.537	0.098	1.561
M3240	Refined petroleum products (except petrochemicals)	0.844	0.252	0.026	2.150
M3250	Chemical products	0.756	0.226	0.027	1.795
M3260	Plastic and rubber products	0.692	0.416	0.063	1.615
M3270	Non-metallic mineral products	0.828	0.391	0.056	1.681
M3310	Primary metallic products	0.389	0.233	0.031	1.373
M3320	Fabricated metallic products	0.707	0.472	0.066	1.535
M3330	Industrial machinery	0.641	0.401	0.055	1.530
M334C	Computer and electronic products	0.740	0.475	0.071	1.452
M3350	Electrical equipment, appliances and components	0.674	0.417	0.059	1.431
M336A	Transportation equipment	0.627	0.408	0.062	1.466
M3363	Motor vehicle parts	0.653	0.455	0.071	1.467

TABLE 7

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M3370	Furniture and related products	0.801	0.534	0.102	1.702
M3B00	Other manufactured products and custom work	0.788	0.476	0.082	1.645
M4100	Wholesale margins and commissions	0.971	0.545	0.079	1.665
M4A00	Retail margins, sales of used goods and commissions	1.068	0.641	0.160	1.727
M4B00	Transportation and related services	0.914	0.496	0.077	1.798
M51D0	Information and cultural services	0.901	0.506	0.086	1.607
M51E0	Published and recorded media products	0.913	0.495	0.085	1.590
M5170	Telecommunications	0.895	0.244	0.032	1.325
M52C0	Depository credit intermediation	1.029	0.518	0.078	1.530
M5F00	Other finance, insurance and rights to non-financial intangible assets	1.004	0.637	0.093	1.873
M53D0	Real estate, rental and leasing	0.951	0.415	0.067	1.645
M541E	Professional services excluding software and research and development	1.024	0.646	0.096	1.705
M5E00	Software	1.016	0.612	0.089	1.681
M5417	Research and development	0.986	0.523	0.072	1.693
M5G00	Administrative and support, head office, waste management and remediation services	0.998	0.570	0.103	1.715
M6100	Education services	1.095	0.730	0.148	1.673
M6200	Health and social assistance services	1.083	0.677	0.128	1.605
M7100	Amusement, recreation and gambling services	0.965	0.623	0.163	1.787
M7200	Accommodation and food services	0.941	0.602	0.181	1.769
M8100	Other services	1.033	0.647	0.138	1.693
M9A00	Sales of other services by Non-Profit Institutions Serving Households	0.972	0.682	0.161	1.859
M9B00	Sales of other government services	1.027	0.705	0.096	1.801
N0000	Services provided by Non-Profit Institutions Serving Households	1.029	0.756	0.179	1.798
G6100	Education services provided by government sector	1.151	0.859	0.132	1.618
G6200	Health services provided by government sector	1.074	0.809	0.136	1.638
G9110	Other federal government services	1.051	0.754	0.102	1.694
G9120	Other provincial and territorial government services	0.998	0.648	0.093	1.976
G9130	Other municipal government services	1.005	0.580	0.086	1.632
G9140	Other aboriginal government services	1.038	0.688	0.158	1.939

Notes: Simple/Total multipliers for GDP, Labour Income and total Output expressed as total impact per dollar of output change. Simple/Total multipliers for employment expressed as total number of jobs required per $10,000 of output change. Please note that all employment impacts are measured in person-years. *Includes labour income of the unincorporated sector.

Table 8: Alberta Total Multipliers (Commodities at Purchaser Prices)

Closed Model - Direct, Indirect and Induced Impacts

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M111B	Grains and other crop products	0.764	0.229	0.045	1.604
M112A	Live animals	0.686	0.315	0.105	2.361
M11D0	Other farm products	0.745	0.273	0.070	1.866
M11E0	Forestry products and services	0.836	0.486	0.063	2.018
M1140	Fish and seafood, live, fresh, chilled or frozen	0.555	0.262	0.077	1.631
M1150	Support services related to farming and forestry	0.839	0.450	0.098	2.138
M21B0	Mineral fuels	0.852	0.246	0.025	1.386
M2122	Metal ores and concentrates	0.836	0.469	0.059	1.642
M2123	Non-metallic minerals	0.572	0.209	0.029	0.974
M2130	Mineral support services	0.890	0.461	0.056	1.549
M21A0	Mineral and oil and gas exploration	0.929	0.360	0.036	1.535
M2200	Utilities	0.913	0.437	0.051	1.472
M23A0	Residential construction	0.775	0.496	0.074	1.688
M23B0	Non-residential buildings	0.782	0.502	0.070	1.743
M23C0	Engineering construction	0.838	0.524	0.070	1.850
M23D0	Repair construction services	0.778	0.508	0.076	1.680
M31C0	Food and non-alcoholic beverages	0.516	0.254	0.058	1.660
M312A	Alcoholic beverages and tobacco products	0.543	0.159	0.026	0.894
M31D0	Textile products, clothing, and products of leather and similar materials	0.585	0.414	0.103	1.105
M3210	Wood products	0.569	0.360	0.053	1.305
M3220	Wood pulp, paper and paper products and paper stock	0.638	0.332	0.041	1.617
M3230	Printed products and services	0.562	0.373	0.068	1.084
M3240	Refined petroleum products (except petrochemicals)	0.643	0.192	0.020	1.638
M3250	Chemical products	0.658	0.197	0.023	1.564
M3260	Plastic and rubber products	0.464	0.279	0.042	1.083
M3270	Non-metallic mineral products	0.663	0.313	0.045	1.346
M3310	Primary metallic products	0.386	0.231	0.030	1.363
M3320	Fabricated metallic products	0.625	0.418	0.058	1.357
M3330	Industrial machinery	0.509	0.319	0.044	1.215
M334C	Computer and electronic products	0.622	0.399	0.059	1.220
M3350	Electrical equipment, appliances and components	0.536	0.332	0.047	1.140
M336A	Transportation equipment	0.542	0.352	0.054	1.266
M3363	Motor vehicle parts	0.419	0.292	0.046	0.941

TABLE 8

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M3370	Furniture and related products	0.635	0.423	0.081	1.349
M3B00	Other manufactured products and custom work	0.653	0.395	0.068	1.364
M4100	Wholesale margins and commissions	0.971	0.545	0.079	1.665
M4A00	Retail margins, sales of used goods and commissions	1.068	0.641	0.160	1.727
M4B00	Transportation and related services	0.898	0.487	0.075	1.767
M51D0	Information and cultural services	0.893	0.502	0.086	1.593
M51E0	Published and recorded media products	0.714	0.387	0.067	1.244
M5170	Telecommunications	0.855	0.234	0.030	1.266
M52C0	Depository credit intermediation	1.028	0.517	0.078	1.528
M5F00	Other finance, insurance and rights to non-financial intangible assets	1.004	0.637	0.093	1.873
M53D0	Real estate, rental and leasing	0.928	0.405	0.066	1.606
M541E	Professional services excluding software and research and development	0.991	0.625	0.093	1.650
M5E00	Software	1.008	0.607	0.088	1.668
M5417	Research and development	0.986	0.523	0.072	1.693
M5G00	Administrative and support, head office, waste management and remediation services	0.983	0.561	0.102	1.688
M6100	Education services	1.085	0.724	0.147	1.658
M6200	Health and social assistance services	1.083	0.677	0.128	1.605
M7100	Amusement, recreation and gambling services	0.782	0.505	0.132	1.449
M7200	Accommodation and food services	0.998	0.575	0.172	1.688
M8100	Other services	0.990	0.619	0.132	1.621
M9A00	Sales of other services by Non-Profit Institutions Serving Households	0.972	0.682	0.161	1.859
M9B00	Sales of other government services	1.027	0.705	0.096	1.801
N0000	Services provided by Non-Profit Institutions Serving Households	1.029	0.756	0.179	1.798
G6100	Education services provided by government sector	1.151	0.859	0.132	1.618
G6200	Health services provided by government sector	1.074	0.809	0.136	1.638
G9110	Other federal government services	1.051	0.754	0.102	1.694
G9120	Other provincial and territorial government services	0.998	0.648	0.093	1.976
G9130	Other municipal government services	1.005	0.580	0.086	1.632
G9140	Other aboriginal government services	1.038	0.688	0.158	1.939

Notes: Simple/Total multipliers for GDP, Labour Income and total Output expressed as total impact per dollar of output change. Simple/Total multipliers for employment expressed as total number of jobs required per $10,000 of output change. Please note that all employment impacts are measured in person-years. *Includes labour income of the unincorporated sector.

Table 9: Alberta Total Multipliers (Industries)

Closed Model - Direct , Indirect and Induced Impacts

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS11A00	Crop and animal production	0.711	0.255	0.068	1.901
BS11300	Forestry and logging	0.782	0.465	0.058	1.944
BS11400	Fishing, hunting and trapping	0.891	0.441	0.086	1.471
BS11500	Support activities for agriculture and forestry	0.938	0.687	0.105	1.786
BS21100	Oil and gas extraction	0.884	0.254	0.025	1.429
BS21210	Coal mining	0.781	0.337	0.035	1.560
BS21220	Metal ore mining	0.792	0.450	0.055	1.568
BS21230	Non-metal mineral mining and quarrying	0.804	0.279	0.038	1.355
BS21300	Support activities for mining and oil and gas extraction	0.833	0.441	0.051	1.455
BS22110	Electric power generation, transmission and distribution	0.848	0.400	0.039	1.423
BS221A0	Natural gas distribution, water, sewage and other systems	1.064	0.504	0.060	1.421
BS23A00	Residential building construction	0.742	0.490	0.072	1.650
BS23B00	Non-residential building construction	0.721	0.477	0.065	1.643
BS23C10	Transportation engineering construction	0.763	0.488	0.066	1.768
BS23C20	Oil and gas engineering construction	0.771	0.503	0.065	1.752
BS23C30	Electric power engineering construction	0.823	0.396	0.052	1.530
BS23C40	Communication engineering construction	0.601	0.364	0.049	1.619
BS23C50	Other engineering construction	0.754	0.489	0.058	1.641
BS23D00	Repair construction	0.745	0.502	0.073	1.642
BS23E00	Other activities of the construction industry	0.832	0.284	0.046	1.460
BS31110	Animal food manufacturing	0.517	0.254	0.042	1.708
BS31130	Sugar and confectionery product manufacturing	0.606	0.220	0.033	1.353
BS31140	Fruit and vegetable preserving and specialty food manufacturing	0.640	0.362	0.068	1.604
BS31150	Dairy product manufacturing	0.641	0.282	0.071	2.190
BS31160	Meat product manufacturing	0.590	0.337	0.087	2.375
BS31170	Seafood product preparation and packaging	0.412	0.323	0.066	1.259
BS311A0	Miscellaneous food manufacturing	0.725	0.288	0.055	1.900
BS31211	Soft drink and ice manufacturing	0.576	0.333	0.052	1.445
BS31212	Breweries	0.807	0.236	0.037	1.315
BS3121A	Wineries and distilleries	0.870	0.240	0.038	1.466
BS31220	Tobacco manufacturing	-	-	-	-

TABLE 9

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS31A00	Textile and textile product mills	0.719	0.544	0.135	1.461
BS31B00	Clothing and leather and allied product manufacturing	0.833	0.637	0.161	1.512
BS32100	Wood product manufacturing	0.748	0.487	0.069	1.767
BS32210	Pulp, paper and paperboard mills	0.645	0.327	0.038	1.689
BS32220	Converted paper product manufacturing	0.550	0.395	0.056	1.323
BS32300	Printing and related support activities	0.712	0.498	0.089	1.403
BS32400	Petroleum and coal products manufacturing	0.823	0.242	0.024	2.114
BS32510	Basic chemical manufacturing	0.742	0.184	0.020	1.730
BS32520	Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	0.747	0.207	0.024	1.994
BS32530	Pesticides, fertilizer and other agricultural chemical manufacturing	0.662	0.240	0.029	1.496
BS32540	Pharmaceutical and medicine manufacturing	0.664	0.411	0.076	1.466
BS325A0	Miscellaneous chemical product manufacturing	0.662	0.285	0.037	1.532
BS32610	Plastic product manufacturing	0.638	0.389	0.059	1.521
BS32620	Rubber product manufacturing	0.509	0.396	0.054	1.316
BS327A0	Non-metallic mineral product manufacturing (except cement and concrete products)	0.781	0.384	0.057	1.486
BS32730	Cement and concrete product manufacturing	0.776	0.363	0.049	1.632
BS33100	Primary metal manufacturing	0.347	0.207	0.026	1.317
BS33200	Fabricated metal product manufacturing	0.649	0.450	0.061	1.424
BS33300	Machinery manufacturing	0.583	0.375	0.049	1.444
BS33410	Computer and peripheral equipment manufacturing	0.732	0.528	0.072	1.392
BS334B0	Electronic product manufacturing	0.671	0.443	0.065	1.342
BS335A0	Electrical equipment and component manufacturing	0.619	0.391	0.054	1.336
BS33520	Household appliance manufacturing	0.625	0.425	0.079	1.380
BS33610	Motor vehicle manufacturing	0.463	0.337	0.044	1.307
BS33620	Motor vehicle body and trailer manufacturing	0.540	0.401	0.063	1.384
BS33630	Other motor vehicle parts manufacturing	0.526	0.395	0.064	1.337
BS33640	Aerospace product and parts manufacturing	0.603	0.320	0.040	1.322
BS33650	Railroad rolling stock manufacturing	0.754	0.866	0.133	1.425
BS33660	Ship and boat building	0.683	0.493	0.101	1.338
BS33690	Other transportation equipment manufacturing	0.656	0.427	0.067	1.409
BS33700	Furniture and related product manufacturing	0.710	0.496	0.096	1.546

TABLE 9

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS33900	Miscelleneous manufacturing	0.744	0.479	0.088	1.500
BS41000	Wholesale trade	0.913	0.522	0.073	1.546
BS4A000	Retail trade	0.974	0.602	0.153	1.556
BS48100	Air transportation	0.690	0.409	0.063	1.836
BS48200	Rail transportation	0.931	0.553	0.067	1.618
BS48300	Water transportation	0.810	0.444	0.093	1.524
BS48400	Truck transportation	0.777	0.482	0.071	1.823
BS48B00	Transit, ground passenger and scenic and sightseeing transportation, taxi and limousine service and support activities for transportation	0.973	0.670	0.116	1.703
BS48600	Pipeline transportation	0.950	0.221	0.021	1.322
BS49A00	Postal service and couriers and messengers	0.850	0.654	0.122	1.661
BS49300	Warehousing and storage	0.943	0.671	0.130	1.463
BS51200	Motion picture and sound recording industries	0.820	0.413	0.109	1.498
BS51510	Radio and television broadcasting	0.729	0.464	0.084	1.392
BS51B00	Publishing, pay/specialty services, telecommunications and other information services	0.877	0.311	0.042	1.346
BS52B00	Depository credit intermediation and monetary authorities	0.979	0.488	0.072	1.396
BS52410	Insurance carriers	0.898	0.517	0.080	1.913
BS53110	Lessors of real estate	0.907	0.313	0.049	1.535
BS5311A	Owner-occupied dwellings	0.974	0.051	0.008	1.160
BS53B00	Rental and leasing services and lessors of non-financial intangible assets (except copyrighted works)	0.872	0.402	0.059	1.521
BS5A000	Other finance, insurance and real estate services and management of companies and enterprises	0.919	0.621	0.090	1.756
BS541C0	Legal, accounting and architectural, engineering and related services	0.953	0.628	0.084	1.551
BS541D0	Computer systems design and other professional, scientific and technical services	0.942	0.602	0.097	1.604
BS54180	Advertising, public relations and related services	0.831	0.567	0.115	1.569
BS56100	Administrative and support services	0.958	0.672	0.136	1.559
BS56200	Waste management and remediation services	0.985	0.385	0.055	1.349
BS61000	Educational services	1.012	0.687	0.229	1.647
BS62000	Health care services and social assistance	0.988	0.608	0.116	1.426

TABLE 9

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS71000	Arts, entertainment and recreation	0.858	0.583	0.177	1.628
BS72000	Accommodation and food services	0.832	0.556	0.173	1.593
BS81100	Repair and maintenance	0.921	0.610	0.107	1.521
BS81A00	Personal services and private households	0.970	0.621	0.236	1.451
BS81300	Professional and similar organisations	0.916	0.682	0.145	1.700
NP61000	Non-profit education services	0.898	0.742	0.154	1.376
NP62400	Non-profit social assistance	1.006	0.863	0.224	1.386
NP71000	Non-profit arts, entertainment and recreation	0.845	0.594	0.175	1.656
NP81310	Religious organizations	0.869	0.671	0.170	1.533
NPA0000	Miscellaneous non-profit institutions serving households	0.843	0.637	0.146	1.637
GS611B0	Educational services	1.012	0.687	0.229	1.647
GS61130	Universities	0.984	0.594	0.084	1.389
GS62200	Hospitals	0.929	0.726	0.124	1.439
GS62300	Nursing and residential care facilities	1.089	0.926	0.130	1.412
GS91100	Other federal government services (including defence)	0.957	0.716	0.093	1.534
GS91200	Other provincial and territorial government services	0.923	0.615	0.087	1.849
GS91300	Other municipal government services	0.926	0.545	0.079	1.497
GS91400	Other aboriginal government services	0.902	0.628	0.146	1.708

Notes: Simple/Total multipliers for GDP, Labour Income and total Output expressed as total impact per dollar of output change. Simple/Total multipliers for employment expressed as total number of jobs required per $10,000 of output change. Please note that all employment impacts are measured in person-years. *Includes labour income of the unincorporated sector.

Table 10: Alberta Type II Multipliers (Industries)

Closed Model with Safety Net - Direct , Indirect and Induced Impacts

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS11A00	Crop and animal production	2.275	3.365	1.984	1.901
BS11300	Forestry and logging	2.133	1.997	2.266	1.944
BS11400	Fishing, hunting and trapping	1.418	1.605	1.446	1.471
BS11500	Support activities for agriculture and forestry	1.737	1.392	1.421	1.786
BS21100	Oil and gas extraction	1.374	2.076	4.112	1.429
BS21210	Coal mining	X	X	X	1.560
BS21220	Metal ore mining	X	X	X	1.568
BS21230	Non-metal mineral mining and quarrying	X	X	X	1.355
BS21300	Support activities for mining and oil and gas extraction	1.409	1.389	1.602	1.455
BS22110	Electric power generation, transmission and distribution	1.369	1.409	1.820	1.423
BS221A0	Natural gas distribution, water, sewage and other systems	1.256	1.285	1.458	1.421
BS23A00	Residential building construction	1.868	1.673	1.837	1.650
BS23B00	Non-residential building construction	1.937	1.717	1.876	1.643
BS23C10	Transportation engineering construction	2.162	1.801	1.928	1.768
BS23C20	Oil and gas engineering construction	2.192	1.810	1.910	1.752
BS23C30	Electric power engineering construction	1.512	1.651	1.844	1.530
BS23C40	Communication engineering construction	2.356	2.229	2.614	1.619
BS23C50	Other engineering construction	1.824	1.628	1.952	1.641
BS23D00	Repair construction	1.838	1.623	1.915	1.642
BS23E00	Other activities of the construction industry	1.410	1.722	1.769	1.460
BS31110	Animal food manufacturing	2.687	2.286	2.441	1.708
BS31130	Sugar and confectionery product manufacturing	X	X	X	1.353
BS31140	Fruit and vegetable preserving and specialty food manufacturing	X	X	X	1.604
BS31150	Dairy product manufacturing	X	X	X	2.190
BS31160	Meat product manufacturing	3.406	2.517	3.209	2.375
BS31170	Seafood product preparation and packaging	1.501	1.305	1.232	1.259
BS311A0	Miscellaneous food manufacturing	2.544	2.370	2.256	1.900
BS31211	Soft drink and ice manufacturing	X	X	X	1.445
BS31212	Breweries	X	X	X	1.315
BS3121A	Wineries and distilleries	1.391	1.841	1.892	1.436
BS31220	Tobacco manufacturing	-	-	-	-

Table 10

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS31A00	Textile and textile product mills	X	X	X	1.461
BS31B00	Clothing and leather and allied product manufacturing	X	X	X	1.512
BS32100	Wood product manufacturing	1.954	1.728	1.811	1.767
BS32210	Pulp, paper and paperboard mills	2.142	2.284	2.961	1.689
BS32220	Converted paper product manufacturing	X	X	X	1.323
BS32300	Printing and related support activities	1.429	1.289	1.256	1.403
BS32400	Petroleum and coal products manufacturing	5.688	6.503	13.131	2.114
BS32510	Basic chemical manufacturing	2.051	4.018	4.920	1.730
BS32520	Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	2.573	3.852	4.902	1.994
BS32530	Pesticides, fertilizer and other agricultural chemical manufacturing	1.707	2.081	2.467	1.496
BS32540	Pharmaceutical and medicine manufacturing	X	X	X	1.466
BS325A0	Miscellaneous chemical product manufacturing	X	X	X	1.532
BS32610	Plastic product manufacturing	1.662	1.418	1.436	1.521
BS32620	Rubber product manufacturing	1.514	1.298	1.395	1.316
BS327A0	Non-metallic mineral product manufacturing (except cement and concrete products)	1.503	1.536	1.540	1.486
BS32730	Cement and concrete product manufacturing	X	X	X	1.632
BS33100	Primary metal manufacturing	X	X	X	1.317
BS33200	Fabricated metal product manufacturing	1.535	1.378	1.478	1.424
BS33300	Machinery manufacturing	1.646	1.522	1.665	1.444
BS33410	Computer and peripheral equipment manufacturing	X	X	X	1.392
BS334B0	Electronic product manufacturing	X	X	X	1.342
BS335A0	Electrical equipment and component manufacturing	X	X	X	1.336
BS33520	Household appliance manufacturing	X	X	X	1.380
BS33610	Motor vehicle manufacturing	X	X	X	1.307
BS33620	Motor vehicle body and trailer manufacturing	X	X	X	1.384
BS33630	Other motor vehicle parts manufacturing	X	X	X	1.337
BS33640	Aerospace product and parts manufacturing	X	X	X	1.322
BS33650	Railroad rolling stock manufacturing	X	X	X	1.425
BS33660	Ship and boat building	X	X	X	1.338
BS33690	Other transportation equipment manufacturing	1.493	1.391	1.394	1.409
BS33700	Furniture and related product manufacturing	1.678	1.470	1.402	1.546

Table 10

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS33900	Miscelleneous manufacturing	X	X	X	1.500
BS41000	Wholesale trade	1.510	1.439	1.571	1.546
BS4A000	Retail trade	1.486	1.364	1.224	1.556
BS48100	Air transportation	X	X	X	1.836
BS48200	Rail transportation	X	X	X	1.618
BS48300	Water transportation	X	X	X	1.524
BS48400	Truck transportation	2.002	1.731	1.784	1.823
BS48B00	Transit, ground passenger and scenic and sightseeing transportation, taxi and limousine service and support activities for transportation	1.632	1.418	1.417	1.703
BS48600	Pipeline transportation	1.223	1.772	3.017	1.322
BS49A00	Postal service and couriers and messengers	1.682	1.387	1.355	1.661
BS49300	Warehousing and storage	1.376	1.246	1.211	1.463
BS51200	Motion picture and sound recording industries	1.549	1.594	1.357	1.498
BS51510	Radio and television broadcasting	X	X	X	1.392
BS51B00	Publishing, pay/specialty services, telecommunications and other information services	X	X	X	1.346
BS52B00	Depository credit intermediation and monetary authorities	1.304	1.346	1.440	1.396
BS52410	Insurance carriers	2.616	3.373	4.015	1.913
BS53110	Lessors of real estate	1.501	2.265	2.776	1.535
BS5311A	Owner-occupied dwellings	1.099	0.000	0.000	1.160
BS53B00	Rental and leasing services and lessors of non-financial intangible assets (except copyrighted works)	1.486	1.605	1.797	1.521
BS5A000	Other finance, insurance and real estate services and management of companies and enterprises	1.893	1.624	1.799	1.756
BS541C0	Legal, accounting and architectural, engineering and related services	1.498	1.357	1.552	1.551
BS541D0	Computer systems design and other professional, scientific and technical services	1.596	1.469	1.544	1.604
BS54180	Advertising, public relations and related services	1.648	1.463	1.403	1.569
BS56100	Administrative and support services	1.504	1.337	1.295	1.559
BS56200	Waste management and remediation services	1.238	1.350	1.465	1.349
BS61000	Educational services	1.582	1.375	1.182	1.647
BS62000	Health care services and social assistance	1.335	1.260	1.261	1.426

Table 10

"Link 1961" Industry Code	Industry Title	GDP at Basic Prices	Labour Income*	Employment	Output
BS71000	Arts, entertainment and recreation	1.724	1.536	1.299	1.628
BS72000	Accommodation and food services	1.595	1.415	1.226	1.593
BS81100	Repair and maintenance	1.462	1.324	1.333	1.521
BS81A00	Personal services and private households	1.364	1.276	1.121	1.451
BS81300	Professional and similar organisations	1.768	1.478	1.414	1.700
NP61000	Non-profit education services	1.326	1.178	1.156	1.376
NP62400	Non-profit social assistance	1.282	1.149	1.104	1.386
NP71000	Non-profit arts, entertainment and recreation	1.812	1.489	1.258	1.656
NP81310	Religious organizations	1.553	1.320	1.205	1.533
NPA0000	Miscellaneous non-profit institutions serving households	1.786	1.468	1.335	1.637
GS611B0	Educational services	1.582	1.375	1.182	1.647
GS61130	Universities	1.281	1.238	1.357	1.389
GS62200	Hospitals	1.387	1.243	1.294	1.439
GS62300	Nursing and residential care facilities	1.280	1.151	1.241	1.412
GS91100	Other federal government services (including defence)	1.454	1.296	1.470	1.534
GS91200	Other provincial and territorial government services	2.483	2.207	3.252	1.849
GS91300	Other municipal government services	1.434	1.402	1.540	1.497
GS91400	Other aboriginal government services	1.899	1.724	1.649	1.708

Notes: Type I/II multipliers for GDP expressed as total impact per direct change in GDP.
Type I/II multipliers for Labour Income expressed as total impact per direct change in Labour Income.
Type I/II multipliers for total Output expressed as total impact per direct change in output.
Type I/II multipliers for Employment expressed as total jobs required per direct job required.
Please note that all employment impacts are measured in person-years.

The direct change in GDP at basic prices, labour income or number of direct jobs required must be known before using these multipliers. *Includes labour income of the unincorporated sector.

Table 11: Alberta Total Multipliers (Commodities at Basic Prices)

Closed Model with Safety Net - Direct, Indirect and Induced Impacts

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M111B	Grains and other crop products	0.752	0.220	0.042	1.598
M112A	Live animals	0.651	0.300	0.104	2.339
M11D0	Other farm products	0.718	0.260	0.067	1.839
M11E0	Forestry products and services	0.782	0.464	0.058	1.932
M1140	Fish and seafood, live, fresh, chilled or frozen	0.695	0.331	0.099	2.123
M1150	Support services related to farming and forestry	0.771	0.420	0.092	2.021
M21B0	Mineral fuels	0.881	0.251	0.025	1.431
M2122	Metal ores and concentrates	0.792	0.450	0.055	1.568
M2123	Non-metallic minerals	0.802	0.290	0.039	1.368
M2130	Mineral support services	0.832	0.436	0.051	1.451
M21A0	Mineral and oil and gas exploration	0.898	0.346	0.033	1.483
M2200	Utilities	0.896	0.431	0.049	1.439
M23A0	Residential construction	0.742	0.490	0.072	1.650
M23B0	Non-residential buildings	0.721	0.477	0.065	1.643
M23C0	Engineering construction	0.771	0.495	0.064	1.736
M23D0	Repair construction services	0.745	0.502	0.073	1.642
M31C0	Food and non-alcoholic beverages	0.628	0.312	0.071	2.110
M312A	Alcoholic beverages and tobacco products	0.824	0.237	0.037	1.356
M31D0	Textile products, clothing, and products of leather and similar materials	0.781	0.583	0.147	1.497
M3210	Wood products	0.751	0.489	0.069	1.764
M3220	Wood pulp, paper and paper products and paper stock	0.635	0.334	0.040	1.642
M3230	Printed products and services	0.717	0.498	0.090	1.405
M3240	Refined petroleum products (except petrochemicals)	0.823	0.242	0.024	2.113
M3250	Chemical products	0.733	0.216	0.025	1.757
M3260	Plastic and rubber products	0.632	0.390	0.058	1.513
M3270	Non-metallic mineral products	0.775	0.368	0.051	1.591
M3310	Primary metallic products	0.363	0.221	0.028	1.328
M3320	Fabricated metallic products	0.645	0.446	0.060	1.431
M3330	Industrial machinery	0.590	0.380	0.050	1.444
M334C	Computer and electronic products	0.678	0.448	0.065	1.346
M3350	Electrical equipment, appliances and components	0.620	0.394	0.054	1.341
M336A	Transportation equipment	0.569	0.382	0.057	1.368
M3363	Motor vehicle parts	0.587	0.427	0.065	1.355

TABLE 11

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M3370	Furniture and related products	0.706	0.492	0.094	1.541
M3B00	Other manufactured products and custom work	0.716	0.445	0.076	1.523
M4100	Wholesale margins and commissions	0.902	0.514	0.073	1.548
M4A00	Retail margins, sales of used goods and commissions	0.966	0.596	0.150	1.555
M4B00	Transportation and related services	0.843	0.465	0.070	1.678
M51D0	Information and cultural services	0.828	0.475	0.080	1.484
M51E0	Published and recorded media products	0.837	0.462	0.078	1.462
M5170	Telecommunications	0.868	0.233	0.029	1.281
M52C0	Depository credit intermediation	0.969	0.492	0.072	1.429
M5F00	Other finance, insurance and rights to non-financial intangible assets	0.930	0.604	0.087	1.747
M53D0	Real estate, rental and leasing	0.896	0.391	0.062	1.553
M541E	Professional services excluding software and research and development	0.944	0.611	0.089	1.570
M5E00	Software	0.942	0.579	0.082	1.556
M5417	Research and development	0.923	0.496	0.066	1.588
M5G00	Administrative and support, head office, waste management and remediation services	0.919	0.535	0.096	1.580
M6100	Education services	0.997	0.688	0.139	1.508
M6200	Health and social assistance services	0.985	0.634	0.119	1.439
M7100	Amusement, recreation and gambling services	0.861	0.577	0.153	1.611
M7200	Accommodation and food services	0.835	0.557	0.171	1.591
M8100	Other services	0.926	0.600	0.128	1.511
M9A00	Sales of other services by Non-Profit Institutions Serving Households	0.839	0.624	0.149	1.633
M9B00	Sales of other government services	0.944	0.669	0.088	1.660
N0000	Services provided by Non-Profit Institutions Serving Households	0.881	0.692	0.166	1.548
G6100	Education services provided by government sector	1.044	0.813	0.122	1.438
G6200	Health services provided by government sector	0.953	0.757	0.125	1.434
G9110	Other federal government services	0.957	0.713	0.094	1.534
G9120	Other provincial and territorial government services	0.923	0.615	0.087	1.849
G9130	Other municipal government services	0.926	0.545	0.079	1.497
G9140	Other aboriginal government services	0.902	0.628	0.146	1.708

Notes: Simple/Total multipliers for GDP, Labour Income and total Output expressed as total impact per dollar of output change. Simple/Total multipliers for employment expressed as total number of jobs required per $10,000 of output change. Please note that all employment impacts are measured in person-years. *Includes labour income of the unincorporated sector.

Table 12: Alberta Total Multipliers (Commodities at Purchaser Prices)

Closed Model with Safety Net - Direct, Indirect and Induced Impacts

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M111B	Grains and other crop products	0.723	0.211	0.041	1.534
M112A	Live animals	0.631	0.291	0.100	2.268
M11D0	Other farm products	0.695	0.252	0.065	1.782
M11E0	Forestry products and services	0.775	0.459	0.057	1.915
M1140	Fish and seafood, live, fresh, chilled or frozen	0.508	0.242	0.072	1.550
M1150	Support services related to farming and forestry	0.771	0.420	0.092	2.021
M21B0	Mineral fuels	0.831	0.237	0.023	1.350
M2122	Metal ores and concentrates	0.792	0.450	0.055	1.568
M2123	Non-metallic minerals	0.543	0.196	0.027	0.926
M2130	Mineral support services	0.832	0.436	0.051	1.451
M21A0	Mineral and oil and gas exploration	0.898	0.346	0.033	1.483
M2200	Utilities	0.869	0.418	0.047	1.397
M23A0	Residential construction	0.709	0.468	0.068	1.576
M23B0	Non-residential buildings	0.718	0.474	0.064	1.634
M23C0	Engineering construction	0.771	0.495	0.064	1.736
M23D0	Repair construction services	0.712	0.479	0.070	1.569
M31C0	Food and non-alcoholic beverages	0.472	0.235	0.054	1.587
M312A	Alcoholic beverages and tobacco products	0.520	0.149	0.023	0.856
M31D0	Textile products, clothing, and products of leather and similar materials	0.513	0.383	0.097	0.983
M3210	Wood products	0.521	0.339	0.048	1.224
M3220	Wood pulp, paper and paper products and paper stock	0.600	0.316	0.038	1.554
M3230	Printed products and services	0.498	0.345	0.062	0.976
M3240	Refined petroleum products (except petrochemicals)	0.627	0.185	0.019	1.610
M3250	Chemical products	0.638	0.188	0.022	1.530
M3260	Plastic and rubber products	0.424	0.261	0.039	1.015
M3270	Non-metallic mineral products	0.620	0.294	0.041	1.274
M3310	Primary metallic products	0.360	0.219	0.028	1.317
M3320	Fabricated metallic products	0.571	0.394	0.053	1.265
M3330	Industrial machinery	0.469	0.302	0.040	1.148
M334C	Computer and electronic products	0.569	0.376	0.055	1.131
M3350	Electrical equipment, appliances and components	0.494	0.314	0.043	1.068
M336A	Transportation equipment	0.491	0.330	0.049	1.181
M3363	Motor vehicle parts	0.376	0.274	0.042	0.869

Table 12

"Summary" Commodity Code	Commodity Title	GDP at Basic Prices	Labour Income*	Employment	Output
M3370	Furniture and related products	0.559	0.390	0.074	1.221
M3B00	Other manufactured products and custom work	0.594	0.369	0.063	1.263
M4100	Wholesale margins and commissions	0.902	0.514	0.073	1.548
M4A00	Retail margins, sales of used goods and commissions	0.966	0.596	0.150	1.555
M4B00	Transportation and related services	0.829	0.457	0.069	1.649
M51D0	Information and cultural services	0.821	0.471	0.079	1.471
M51E0	Published and recorded media products	0.655	0.362	0.061	1.144
M5170	Telecommunications	0.830	0.223	0.028	1.224
M52C0	Depository credit intermediation	0.968	0.491	0.072	1.427
M5F00	Other finance, insurance and rights to non-financial intangible assets	0.930	0.604	0.087	1.747
M53D0	Real estate, rental and leasing	0.874	0.382	0.061	1.515
M541E	Professional services excluding software and research and development	0.914	0.591	0.086	1.519
M5E00	Software	0.934	0.575	0.081	1.543
M5417	Research and development	0.923	0.496	0.066	1.588
M5G00	Administrative and support, head office, waste management and remediation services	0.904	0.527	0.095	1.556
M6100	Education services	0.988	0.682	0.138	1.494
M6200	Health and social assistance services	0.984	0.634	0.119	1.438
M7100	Amusement, recreation and gambling services	0.698	0.468	0.124	1.306
M7200	Accommodation and food services	0.797	0.531	0.163	1.518
M8100	Other services	0.887	0.575	0.123	1.447
M9A00	Sales of other services by Non-Profit Institutions Serving Households	0.839	0.624	0.149	1.633
M9B00	Sales of other government services	0.944	0.669	0.088	1.660
N0000	Services provided by Non-Profit Institutions Serving Households	0.881	0.692	0.166	1.548
G6100	Education services provided by government sector	1.044	0.813	0.122	1.438
G6200	Health services provided by government sector	0.953	0.757	0.125	1.434
G9110	Other federal government services	0.957	0.713	0.094	1.534
G9120	Other provincial and territorial government services	0.923	0.615	0.087	1.849
G9130	Other municipal government services	0.926	0.545	0.079	1.497
G9140	Other aboriginal government services	0.902	0.628	0.146	1.708

Notes: Simple/Total multipliers for GDP, Labour Income and total Output expressed as total impact per dollar of output change. Simple/Total multipliers for employment expressed as total number of jobs required per $10,000 of output change. Please note that all employment impacts are measured in person-years. *Includes labour income of the unincorporated sector.

Table 13: Alberta Commodity Supply Ratios

Percent

"Summary" Commodity Code	Commodity Title	Alberta	Rest of Canada	Rest of World	Total Supply
M111B	Grains and other crop products	73.0	5.1	21.8	100
M112A	Live animals	73.3	26.2	0.6	100
M11D0	Other farm products	87.1	12.6	0.3	100
M11E0	Forestry products and services	75.9	21.0	3.1	100
M1140	Fish and seafood, live, fresh, chilled or frozen	1.4	78.0	20.6	100
M1150	Support services related to farming and forestry	80.3	19.7	0.0	100
M21B0	Mineral fuels	79.1	11.3	9.6	100
M2122	Metal ores and concentrates	0.0	0.0	100	100
M2123	Non-metallic minerals	38.0	45.5	16.5	100
M2130	Mineral support services	95.7	4.2	0.1	100
M21A0	Mineral and oil and gas exploration	96.6	3.4	0.0	100
M2200	Utilities	97.2	2.3	0.5	100
M23A0	Residential construction	100	0.0	0.0	100
M23B0	Non-residential buildings	100	0.0	0.0	100
M23C0	Engineering construction	100	0.0	0.0	100
M23D0	Repair construction services	100	0.0	0.0	100
M31C0	Food and non-alcoholic beverages	28.0	49.4	22.6	100
M312A	Alcoholic beverages and tobacco products	13.5	41.7	44.7	100
M31D0	Textile products, clothing, and products of leather and similar materials	3.9	5.3	90.9	100
M3210	Wood products	54.7	33.7	11.5	100
M3220	Wood pulp, paper and paper products and paper stock	17.1	36.7	46.2	100
M3230	Printed products and services	55.0	28.4	16.6	100
M3240	Refined petroleum products (except petrochemicals)	69.1	14.8	16.1	100
M3250	Chemical products	44.7	18.1	37.2	100
M3260	Plastic and rubber products	25.5	30.4	44.1	100
M3270	Non-metallic mineral products	55.9	12.7	31.4	100
M3310	Primary metallic products	18.8	29.6	51.5	100
M3320	Fabricated metallic products	41.8	19.2	39.0	100
M3330	Industrial machinery	29.9	9.0	61.0	100
M334C	Computer and electronic products	3.7	4.9	91.3	100
M3350	Electrical equipment, appliances and components	6.0	18.5	75.5	100
M336A	Transportation equipment	2.0	14.9	83.1	100
M3363	Motor vehicle parts	3.3	8.1	88.6	100

TABLE 13

"Summary" Commodity Code	Commodity Title	Alberta	Rest of Canada	Rest of World	Total Supply
M3370	Furniture and related products	23.8	35.9	40.3	100
M3B00	Other manufactured products and custom work	32.8	12.4	54.8	100
M4100	Wholesale margins and commissions	76.4	23.0	0.6	100
M4A00	Retail margins, sales of used goods and commissions	96.3	2.9	0.8	100
M4B00	Transportation and related services	75.4	22.0	2.5	100
M51D0	Information and cultural services	52.9	36.5	10.6	100
M51E0	Published and recorded media products	26.2	22.7	51.1	100
M5170	Telecommunications	84.1	12.8	3.1	100
M52C0	Depository credit intermediation	74.4	23.4	2.2	100
M5F00	Other finance, insurance and rights to non-financial intangible assets	58.4	33.9	7.7	100
M53D0	Real estate, rental and leasing	97.8	0.8	1.4	100
M541E	Professional services excluding software and research and development	77.7	15.7	6.6	100
M5E00	Software	65.6	22.2	12.2	100
M5417	Research and development	98.7	0.4	0.9	100
M5G00	Administrative and support, head office, waste management and remediation services	70.5	20.5	9.0	100
M6100	Education services	91.3	6.9	1.8	100
M6200	Health and social assistance services	97.8	2.1	0.1	100
M7100	Amusement, recreation and gambling services	86.2	11.4	2.4	100
M7200	Accommodation and food services	90.7	8.6	0.7	100
M8100	Other services	93.7	5.5	0.8	100
M9A00	Sales of other services by Non-Profit Institutions Serving Households	100	0.0	0.0	100
M9B00	Sales of other government services	99.7	0.0	0.3	100
N0000	Services provided by Non-Profit Institutions Serving Households	100	0.0	0.0	100
G6100	Education services provided by government sector	100	0.0	0.0	100
G6200	Health services provided by government sector	100	0.0	0.0	100
G9110	Other federal government services	100	0.0	0.0	100
G9120	Other provincial and territorial government services	100	0.0	0.0	100
G9130	Other municipal government services	100	0.0	0.0	100
G9140	Other aboriginal government services	100	0.0	0.0	100

Appendix 1:

Industry Concordance: "Link 1961" ↔ "Detailed"

"Link 1961" Industry Title	"Link 1961" Codes	"Detailed" Industry Codes
Crop and animal production	BS11A00	BS111A00, BS111400, BS112000
Forestry and logging	BS11300	BS113000
Fishing, hunting and trapping	BS11400	BS114000
Support activities for agriculture and forestry	BS11500	BS115A00, BS115300
Oil and gas extraction	BS21100	BS211113, BS211114
Coal mining	BS21210	BS212100
Metal ore mining	BS21220	BS212210, BS212220, BS212230, BS212290
Non-metal mineral mining and quarrying	BS21230	BS212310, BS212320, BS212392, BS21239A, BS212396
Support activities for mining and oil and gas extraction	BS21300	BS21311A, BS21311B
Electric power generation, transmission and distribution	BS22110	BS221100
Natural gas distribution, water, sewage and other systems	BS221A0	BS221200, BS221300
Residential building construction	BS23A00	BS23A000
Non-residential building construction	BS23B00	BS23B000
Transportation engineering construction	BS23C10	BS23C100
Oil and gas engineering construction	BS23C20	BS23C200
Electric power engineering construction	BS23C30	BS23C300
Communication engineering construction	BS23C40	BS23C400
Other engineering construction	BS23C50	BS23C500
Repair construction	BS23D00	BS23D000
Other activities of the construction industry	BS23E00	BS23E000
Animal food manufacturing	BS31110	BS311100
Sugar and confectionery product manufacturing	BS31130	BS311300
Fruit and vegetable preserving and specialty food manufacturing	BS31140	BS311400
Dairy product manufacturing	BS31150	BS311500
Meat product manufacturing	BS31160	BS311600
Seafood product preparation and packaging	BS31170	BS311700
Miscellaneous food manufacturing	BS311A0	BS311200, BS311800, BS311900
Soft drink and ice manufacturing	BS31211	BS312110
Breweries	BS31212	BS312120
Wineries and distilleries	BS3121A	BS3121A0
Tobacco manufacturing	BS31220	BS312200

Appendix 1

"Link 1961" Industry Title	"Link 1961" Codes	"Detailed" Industry Codes
Textile and textile product mills	BS31A00	BS31A000
Clothing and leather and allied product manufacturing	BS31B00	BS31B000
Wood product manufacturing	BS32100	BS321100, BS321200, BS321900
Pulp, paper and paperboard mills	BS32210	BS322100
Converted paper product manufacturing	BS32220	BS322200
Printing and related support activities	BS32300	BS323000
Petroleum and coal products manufacturing	BS32400	BS324110, BS3241A0
Basic chemical manufacturing	BS32510	BS325100
Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	BS32520	BS325200
Pesticides, fertilizer and other agricultural chemical manufacturing	BS32530	BS325300
Pharmaceutical and medicine manufacturing	BS32540	BS325400
Miscellaneous chemical product manufacturing	BS325A0	BS325500, BS325600, BS325900
Plastic product manufacturing	BS32610	BS326100
Rubber product manufacturing	BS32620	BS326200
Non-metallic mineral product manufacturing (except cement and concrete products)	BS327A0	BS327A00
Cement and concrete product manufacturing	BS32730	BS327300
Primary metal manufacturing	BS33100	BS331100, BS331200, BS331300, BS331400, BS331500
Fabricated metal product manufacturing	BS33200	BS332A00, BS332300, BS332400, BS332500, BS332600, BS332700, BS332800
Machinery manufacturing	BS33300	BS333100, BS333200, BS333300, BS333400, BS333500, BS333600, BS333900
Computer and peripheral equipment manufacturing	BS33410	BS334100
Electronic product manufacturing	BS334B0	BS334200, BS334A00, BS334400
Electrical equipment and component manufacturing	BS335A0	BS335100, BS335300, BS335900
Household appliance manufacturing	BS33520	BS335200
Motor vehicle manufacturing	BS33610	BS336110, BS336120
Motor vehicle body and trailer manufacturing	BS33620	BS336200
Other motor vehicle parts manufacturing	BS33630	BS336310, BS336320, BS336330, BS336340, BS336350, BS336360, BS336370, BS336390
Aerospace product and parts manufacturing	BS33640	BS336400
Railroad rolling stock manufacturing	BS33650	BS336500
Ship and boat building	BS33660	BS336600

Appendix 1

"Link 1961" Industry Title	"Link 1961" Codes	"Detailed" Industry Codes
Other transportation equipment manufacturing	BS33690	BS336900
Furniture and related product manufacturing	BS33700	BS337100, BS337200, BS337900
Miscelleneous manufacturing	BS33900	BS339100, BS339900
Wholesale trade	BS41000	BS411000, BS412000, BS413000, BS414000, BS415000, BS416000, BS417000, BS418000, BS419000
Retail trade	BS4A000	BS441000, BS442000, BS443000, BS444000, BS445000, BS446000, BS447000, BS448000, BS451000, BS452000, BS453000, BS454000
Air transportation	BS48100	BS481000
Rail transportation	BS48200	BS482000
Water transportation	BS48300	BS483000
Truck transportation	BS48400	BS484000
Transit, ground passenger and scenic and sightseeing transportation, taxi and limousine service and support activities for transportation	BS48B00	BS485100, BS48A000, BS485300, BS486000
Pipeline transportation	BS48600	BS486A00, BS486200
Postal service and couriers and messengers	BS49A00	BS49A000
Warehousing and storage	BS49300	BS493000
Motion picture and sound recording industries	BS51200	BS5121A0, BS512130, BS512200
Radio and television broadcasting	BS51510	BS515100
Publishing, pay/specialty services, telecommunications and other information services	BS51B00	BS511110, BS5111A0, BS511200, BS515200, BS517000, BS518000, BS519000
Depository credit intermediation and monetary authorities	BS52B00	BS521000, BS5221A0, BS522130
Insurance carriers	BS52410	BS524100
Lessors of real estate	BS53110	BS531100
Owner-occupied dwellings	BS5311A	BS5311A0
Rental and leasing services and lessors of non-financial intangible assets (except copyrighted works)	BS53B00	BS532100, BS532A00, BS533000
Other finance, insurance and real estate services and management of companies and enterprises	BS5A000	BS522200, BS522300, BS52A000, BS524200, BS531A00, BS551113
Legal, accounting and architectural, engineering and related services	BS541C0	BS541100, BS541200, BS541300
Computer systems design and other professional, scientific and technical services	BS541D0	BS541400, BS541500, BS541600, BS541700, BS541900
Advertising, public relations and related services	BS54180	BS541800

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"Link 1961" Industry Title	"Link 1961" Codes	"Detailed" Industry Codes
Administrative and support services	BS56100	BS561100, BS561A00, BS561300, BS561400, BS561500, BS561600, BS561700
Waste management and remediation services	BS56200	BS562000
Educational services	BS61000	BS610000
Health care services and social assistance	BS62000	BS621100, BS621200, BS621A00, BS623000, BS624000
Arts, entertainment and recreation	BS71000	BS71A000, BS713A00, BS713200
Accommodation and food services	BS72000	BS721100, BS721A00, BS722000
Repair and maintenance	BS81100	BS811100, BS811A00
Personal services and private households	BS81A00	BS812A00, BS812200, BS812300, BS814000
Professional and similar organisations	BS81300	BS813000
Repair and maintenance	FC11000	FC110000
Operating supplies	FC12000	FC120000
Office supplies	FC13000	FC130000
Advertising, promotion, meals, entertainment, travel, meeting and convention expenses	FC20000	FC210000, FC220000
Transportation margins	FC30000	FC300000
Non-profit education services	NP61000	NP610000
Non-profit social assistance	NP62400	NP624000
Non-profit arts, entertainment and recreation	NP71000	NP710000
Religious organizations	NP81310	NP813100
Miscellaneous non-profit institutions serving households	NPA0000	NP621000, NP813A00, NP999999
Educational services	GS611B0	GS611100, GS611200, GS611A00
Universities	GS61130	GS611300
Hospitals	GS62200	GS622000
Nursing and residential care facilities	GS62300	GS623000
Other federal government services (including defence)	GS91100	GS911100, GS911A00
Other provincial and territorial government services	GS91200	GS912000
Other municipal government services	GS91300	GS913000
Other aboriginal government services	GS91400	GS914000

Appendix 2:

Industry Codes: "Detailed" ↔ North American Industry Classification System (NAICS)

"Detailed" Industry Codes	"Detailed" Industry Title	NAICS 2007 Definition	Previous Naics 2002 Code
BS111A00	Crop production (except greenhouse, nursery and floriculture production)	111 excl. 1114	111A00
BS111400	Greenhouse, nursery and floriculture production	1114	111400
BS112000	Animal production	112	112500, 112A00
BS113000	Forestry and logging	113	113
BS114000	Fishing, hunting and trapping	114	114
BS115A00	Support activities for crop and animal production	1151, 1152	115100, 115200
BS115300	Support activities for forestry	1153	115300
BS211113	Conventional oil and gas extraction	211113	NA
BS211114	Non-conventional oil extraction	211114	NA
BS212100	Coal mining	2121	212100
BS212210	Iron ore mining	21221	212210
BS212220	Gold and silver ore mining	21222	212220
BS212230	Copper, nickel, lead and zinc ore mining	21223	212230
BS212290	Other metal ore mining	21229	212290
BS212310	Stone mining and quarrying	21231	212310
BS212320	Sand, gravel, clay, and ceramic and refractory minerals mining and quarrying	21232	212320
BS212392	Diamond mining	212392	212392
BS21239A	Other non-metallic mineral mining and quarrying (except diamond and potash)	212394, 212395, 212397, 212398	21239A
BS212396	Potash mining	212396	212396
BS21311A	Support activities for oil and gas extraction	213111, 213118	NA
BS21311B	Support activities for mining	213117, 213119	NA
BS221100	Electric power generation, transmission and distribution	2211	NA
BS221200	Natural gas distribution	2212	2212
BS221300	Water, sewage and other systems	2213	2213
BS23A000	Residential building construction	ND	2300A0
BS23B000	Non-residential building construction	ND	2300B0
BS23C100	Transportation engineering construction	ND	2300C0
BS23C200	Oil and gas engineering construction	ND	2300D0
BS23C300	Electric power engineering construction	ND	2300E0
BS23C400	Communication engineering construction	ND	2300F0
BS23C500	Other engineering construction	ND	2300G0
BS23D000	Repair construction	ND	2300H0
BS23E000	Other activities of the construction industry	ND	2300I0

Appendix 2

"Detailed" Industry Codes	"Detailed" Industry Title	NAICS 2007 Definition	Previous Naics 2002 Code
BS311100	Animal food manufacturing	3111	3111
BS311200	Grain and oilseed milling	3112	3112
BS311300	Sugar and confectionery product manufacturing	3113	3113
BS311400	Fruit and vegetable preserving and specialty food manufacturing	3114	3114
BS311500	Dairy product manufacturing	3115	3115
BS311600	Meat product manufacturing	3116	3116
BS311700	Seafood product preparation and packaging	3117	3117
BS311800	Bakeries and tortilla manufacturing	3118	3118
BS311900	Other food manufacturing	3119	3119
BS312110	Soft drink and ice manufacturing	31211	312110
BS312120	Breweries	31212	312120
BS3121A0	Wineries and distilleries	31213, 31214	312130, 312140
BS312200	Tobacco manufacturing	3122	3122
BS31A000	Textile and textile product mills	313, 314	31A
BS31B000	Clothing and leather and allied product manufacturing	315, 316	315110, 315190, 315210, 315220, 315230, 315290, 3159, 3161, 3162, 3169
BS321100	Sawmills and wood preservation	3211	3211
BS321200	Veneer, plywood and engineered wood product manufacturing	3212	3212
BS321900	Other wood product manufacturing	3219	3219
BS322100	Pulp, paper and paperboard mills	3221	3221
BS322200	Converted paper product manufacturing	3222	3222
BS323000	Printing and related support activities	323	323
BS324110	Petroleum refineries	32411	324110
BS3241A0	Petroleum and coal products manufacturing (except petroleum refineries)	324 excl. 32411	324120, 324190
BS325100	Basic chemical manufacturing	3251	3251
BS325200	Resin, synthetic rubber, and artificial and synthetic fibres and filaments manufacturing	3252	3252
BS325300	Pesticides, fertilizer and other agricultural chemical manufacturing	3253	3253
BS325400	Pharmaceutical and medicine manufacturing	3254	3254
BS325500	Paint, coating and adhesive manufacturing	3255	3255
BS325600	Soap, cleaning compound and toilet preparation manufacturing	3256	3256
BS325900	Other chemical product manufacturing	3259	3259
BS326100	Plastic product manufacturing	3261	3261

Appendix 2

"Detailed" Industry Codes	"Detailed" Industry Title	NAICS 2007 Definition	Previous Naics 2002 Code
BS326200	Rubber product manufacturing	3262	3262
BS327A00	Non-metallic mineral product manufacturing (except cement and concrete products)	327 excl. 3273	327A
BS327300	Cement and concrete product manufacturing	3273	3273
BS331100	Iron and steel mills and ferro-alloy manufacturing	3311	3311
BS331200	Steel product manufacturing from purchased steel	3312	3312
BS331300	Alumina and aluminum production and processing	3313	3313
BS331400	Non-ferrous metal (except aluminum) production and processing	3314	3314
BS331500	Foundries	3315	3315
BS332100	Forging and stamping	3321	3321
BS332A00	Cutlery, hand tools and other fabricated metal product manufacturing	3322, 3329	3329
BS332300	Architectural and structural metals manufacturing	3323	3323
BS332400	Boiler, tank and shipping container manufacturing	3324	3324
BS332500	Hardware manufacturing	3325	3325
BS332600	Spring and wire product manufacturing	3326	3326
BS332700	Machine shops, turned product and screw, nut and bolt manufacturing	3327	3327
BS332800	Coating, engraving, heat treating and allied activities	3328	3328
BS333100	Agriculture, construction and mining machinery manufacturing	3331	3331
BS333200	Industrial machinery manufacturing	3332	3332
BS333300	Commercial and service industry machinery manufacturing	3333	3333
BS333400	Ventilation, heating, air-conditioning and commercial refrigeration equipment manufacturing	3334	3334
BS333500	Metalworking machinery manufacturing	3335	3335
BS333600	Engine, turbine and power transmission equipment manufacturing	3336	3336
BS333900	Other general-purpose machinery manufacturing	3339	3339
BS334100	Computer and peripheral equipment manufacturing	3341	3341
BS334200	Communications equipment manufacturing	3342	3342
BS334A00	Other electronic product manufacturing	3343, 3345, 3346	3343, 3345, 3346
BS334400	Semiconductor and other electronic component manufacturing	3344	3344
BS335100	Electric lighting equipment manufacturing	3351	335100
BS335200	Household appliance manufacturing	3352	3352
BS335300	Electrical equipment manufacturing	3353	3353
BS335900	Other electrical equipment and component manufacturing	3359	3359
BS336110	Automobile and light-duty motor vehicle manufacturing	33611	33611
BS336120	Heavy-duty truck manufacturing	33612	33612

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"Detailed" Industry Codes	"Detailed" Industry Title	NAICS 2007 Definition	Previous Naics 2002 Code
BS336200	Motor vehicle body and trailer manufacturing	3362	3362
BS336310	Motor vehicle gasoline engine and engine parts manufacturing	33631	336310
BS336320	Motor vehicle electrical and electronic equipment manufacturing	33632	336320
BS336330	Motor vehicle steering and suspension components (except spring) manufacturing	33633	336330
BS336340	Motor vehicle brake system manufacturing	33634	336340
BS336350	Motor vehicle transmission and power train parts manufacturing	33635	336350
BS336360	Motor vehicle seating and interior trim manufacturing	33636	336360
BS336370	Motor vehicle metal stamping manufacturing	33637	336370
BS336390	Other motor vehicle parts manufacturing	33639	336390
BS336400	Aerospace product and parts manufacturing	3364	3364
BS336500	Railroad rolling stock manufacturing	3365	3365
BS336600	Ship and boat building	3366	3366
BS336900	Other transportation equipment manufacturing	3369	3369
BS337100	Household and institutional furniture and kitchen cabinet manufacturing	3371	3371
BS337200	Office furniture (including fixtures) manufacturing	3372	3372
BS337900	Other furniture-related product manufacturing	3379	3379
BS339100	Medical equipment and supplies manufacturing	3391	3391
BS339900	Other miscellaneous manufacturing	3399	3399
BS411000	Farm product wholesaler-distributors	411	NA
BS412000	Petroleum product wholesaler-distributors	412	NA
BS413000	Food, beverage and tobacco wholesaler-distributors	413	NA
BS414000	Personal and household goods wholesaler-distributors	414	NA
BS415000	Motor vehicle and parts wholesaler-distributors	415	NA
BS416000	Building materials and supplies wholesaler-distributors	416	NA
BS417000	Machinery, equipment and supplies wholesaler-distributors	417	NA
BS418000	Miscellaneous wholesaler-distributors	418	NA
BS419000	Wholesale electronic Purchasers and agents and brokers	419	NA
BS441000	Motor vehicle parts dealers	441	NA
BS442000	Furniture and home furnishings stores	442	NA
BS443000	Electronics and appliance stores	443	NA
BS444000	Building materials and garden equipment and supplies dealers	444	NA
BS445000	Food and beverage stores	445	NA
BS446000	Health and personal care stores	446	NA
BS447000	Gasoline stations	447	NA
BS448000	Clothing and clothing accessories stores	448	NA
BS451000	Sporting goods, hobby, book and musical instruments stores	451	NA
BS452000	General merchandise stores	452	NA

Appendix 2

"Detailed" Industry Codes	"Detailed" Industry Title	NAICS 2007 Definition	Previous Naics 2002 Code
BS453000	Miscellaneous stores retailers	453	NA
BS454000	Non-store retailers	454	NA
BS481000	Air transportation	481	481
BS482000	Rail transportation	482	482
BS483000	Water transportation	483	483
BS484000	Truck transportation	484	484
BS485100	Urban transit systems	4851	4851
BS48A000	Other transit and ground passenger transportation and scenic and sightseeing transportation	4852, 4854, 4855, 4859, 487	485A, 487, 4852
BS485300	Taxi and limousine service	4853	4853
BS486A00	Crude oil and other pipeline transportation	4861, 4869	486A00
BS486200	Pipeline transportation of natural gas	4862	486200
BS488000	Support activities for transportation	488	488
BS49A000	Postal service and couriers and messengers	491, 492	49A
BS493000	Warehousing and storage	492	492
BS511110	Newspaper publishers	493	493
BS5111A0	Periodical, book and directory publishers	51111	NA
BS511200	Software publishers	51112, 51113, 51114, 51119	NA
BS5121A0	Motion picture and video industries (except exhibition)	5112	5112
BS512130	Motion picture and video exhibition	51211, 51212, 51219	5121A0
BS512200	Sound recording industries	51213	512130
BS515100	Radio and television broadcasting	5122	5122
BS515200	Pay and specialty television	5151	5151
BS517000	Telecommunications	5152	515200
BS518000	Data processing, hosting, and related services	517	517500, 517A00
BS519000	Other information services	518	518100, 518200
BS521000	Monetary authorities - central bank	519	519000
BS5221A0	Banking and other depository credit intermediation	521	5A0110
BS522130	Local credit unions	52211, 52219	5A0130
BS522200	Non-depository credit intermediation	52213	5A0120
BS522300	Activities related to credit intermediation	5222	NA
BS52A000	Financial investment services, funds and other financial vehicles	5223	NA
BS524100	Insurance carriers	523, 526	5A0630
BS524200	Agencies, brokerages and other insurance related activities	5241	5A02
BS531100	Lessors of real estate	5242	5A0620
BS531A00	Offices of real estate agents and brokers and activities related to real estate	5311	5A03

Appendix 2

"Detailed" Industry Codes	"Detailed" Industry Title	NAICS 2007 Definition	Previous Naics 2002 Code
BS5311A0	Owner-occupied dwellings	5312, 5313	5A0640
BS532100	Automotive equipment rental and leasing	ND	5A04
BS532A00	Rental and leasing services (except automotive equipment)	5321	5A0510
BS533000	Lessors of non-financial intangible assets (except copyrighted works)	532, excl. 5321	NA
BS541100	Legal services	533	NA
BS541200	Accounting, tax preparation, bookkeeping and payroll services	5411	NA
BS541300	Architectural, engineering and related services	5412	NA
BS541400	Specialized design services	5413	541300
BS541500	Computer systems design and related services	5414	NA
BS541600	Management, scientific and technical consulting services	5415	541500
BS541700	Scientific research and development services	5416	NA
BS541800	Advertising, public relations, and related services	5417	NA
BS541900	Other professional, scientific and technical services	5418	541800
BS551113	Holding companies	5419	NA
BS561100	Office administrative services	NA	NA
BS561A00	Facilities and other support services	5611	NA
BS561300	Employment services	5612, 5619	NA
BS561400	Business support services	5613	NA
BS561500	Travel arrangement and reservation services	5614	NA
BS561600	Investigation and security services	5615	561500
BS561700	Services to buildings and dwellings	5616	561600
BS562000	Waste management and remediation services	5617	561700
BS610000	Educational services	562	562
BS621100	Offices of physicians	61	61
BS621200	Offices of dentists	6211	621100
BS621A00	Miscellaneous ambulatory health care services	6212	621200
BS623000	Nursing and residential care facilities	6213, 6214, 6215, 6216, 6219	621A00
BS624000	Social assistance	623	623000
BS71A000	Performing arts, spectator sports and related industries, and heritage institutions	624	624000
BS713A00	Amusement and recreation industries	711, 712	711000, 712000
BS713200	Gambling industries	7131, 7139	713A00
BS721100	Traveller accommodation	7132	713200
BS721A00	RV (recreational vehicle) parks, recreational camps, and rooming and boarding houses	7211	721100

Appendix 2

"Detailed" Industry Codes	"Detailed" Industry Title	NAICS 2007 Definition	Previous Naics 2002 Code
BS722000	Food services and drinking places	7212, 7213	721A00
BS811100	Automotive repair and maintenance	722	722000
BS811A00	Repair and maintenance (except automotive)	8111	811100
BS812A00	Personal care services and other personal services	8112, 8113, 8114	811A00
BS812200	Funeral services	8121, 8124	812A00
BS812300	Dry cleaning and laundry services	8122	812200
BS813000	Professional and similar organizations	8123	812300
BS814000	Private households	813	813
FC110000	Repair and maintenance	814	814000
FC120000	Operating supplies	811	811
FC130000	Office supplies	Fictive	Fictive
FC210000	Advertising, promotion, meals and entertainment	Fictive	Fictive
FC220000	Travel, meeting and convention expenses	Fictive	Fictive
FC300000	Transportation margins	Fictive	Fictive
NP610000	Educational services	Fictive	Fictive
NP621000	Ambulatory health care services	61	61
NP624000	Social assistance	621	NA
NP710000	Arts, entertainment and recreation	624	624000
NP813100	Religious organizations	71	71
NP813A00	Grant-making, civic, and professional and similar organizations	8131	813100
NP999999	Other non-profit institutions serving households	813 excl. 8131	813A00
GS611100	Elementary and secondary schools	NA	NA
GS611200	Community colleges and C.E.G.E.Ps	6111	611100
GS611300	Universities	6112	611200
GS611A00	Other educational services	6113	6113
GS622000	Hospitals	6114-6117	611B00
GS623000	Nursing and residential care facilities	622	622
GS911100	Defence services	623	623000
GS911A00	Other federal government services	9111	911100
GS912000	Other provincial and territorial government services	911 excl. 9111	911A00
GS913000	Other municipal government services	912	912
GS914000	Other aboriginal government services	913	913
GS914000	Other aboriginal government services	914	NA

Notes: NA: Not Available
ND: Not Described in NAICS